ISSN 3006-4007 (Print)
ISSN 3006-4015 (Online)

JAARS

Journal of Advanced Academic Research and Studies

Vol. 3, No.10, 2026



Published by

NLBA Eurasian Institute

Supported by

Journal of Advanced Academic Research and Studies (JAARS)

ISSN 3006-4007 (Print)
ISSN 3006-4015 (Online)

Aims
The Journal of Advanced Academic Research and Studies aims to Continuously promote meaningful and valuable outstanding academic achievements to serve the society, increase advanced academic knowledge for the world civilisation, and serve the progress of science and technology combined with human society.

Journal Title
The official title of the journal is "Journal of Advanced Academic Research and Studies (JAARS)" and the abbreviated title is "J. adv. acad. res. stud."

Year of Launching
Journal of Advanced Academic Research and Studies was launched in 2023.

Availability of the Full-Text in the Web
Full text is freely available from: www.nlbaeai.org

Fund Support
This journal was supported by the NLBA Eurasian Institute Limited.

Index in Database
The articles published in this journal are may index and/or abstracted in EBSCO.
ProQuest, Ex Libris, and Google Scholar.

Subscription Information
All correspondences regarding membership, subscriptions and changes of address should be sent to the society addressed as below: NLBA Eurasian Institute Limited (E-Mail: edubscon@outlook.com , Homepage: www.nlbaeai.org). The annual subscription fees are free of charge.

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Journal of Advanced Academic Research and Studies Volume 3, Number 10
Published 2026

Publisher (Editorial Office)
E-Mail: edubscon@outlook.com, Homepage: www.nlbaeai.org
Hooijdonkseweg 3, 4823 ZD Breda, Nederland

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NLBA Eurasian Institute

Journal of Advanced Academic Research and Studies 高等学术研究期刊
Vol. 3, No.10, 2026 (pp. 1-35)
http://www.nlbaeai.org/

ISSN 3006-4007 (Print)
ISSN 3006-4015 (Online)

Dynamic Coupling Coordination of Higher Vocational Education and Digital Economy: A Spatial-temporal Analysis of China

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Received 20 July 2026, Revised 18 September 2026, Accepted 02 October 2026

Abstract

Purpose – The purpose of this paper is to explore the coupling coordination between higher vocational education and the digital economy.

Design/Methodology/Approach – Based on panel data from 31 provincial regions in China from 2013 to 2022, this paper studies the interdependence between higher vocational education and the digital economy.

Findings – Results show that the national coupling coordination degree increases gradually with a "high coupling with low coordination" pattern. Spatial differentiation follows the hierarchy of eastern > central > western regions. Key drivers undergo staged transitions from infrastructure factors (instructional research investment, R&D investment, digital infrastructure) to quality-oriented enablers (training services, education quality, industry digitization).

Research Implications – Policy simulation suggests tiered strategies: fostering industry-education consortia in advanced eastern regions while promoting targeted digital upskilling in western provinces.

Keywords: higher vocational education; digital economy; coupling coordination; interaction

JEL Classifications: I21, O33, R12, O15

Financial source: This research was funded by Guangdong Province Educational Science Planning Projects (2022GXJK586) and University-Level Social Science Research Project of Shenzhen University of Information Technology "Research on Leveraging Policy Adaptation to Build Shenzhen into a Strong Manufacturing City: A Data-Driven Perspective on Enterprise Innovation" (SZIIT2025SK008).

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I. Introduction

The rise of innovative digital technologies, including big data, cloud computing, and artificial intelligence, has marked a new era of accelerated innovation, and this surge has led to digital industries and the promotion of digital transformation in traditional industries. In this context, many countries are prioritizing the development of the digital economy (Ran et al., 2023). And the workforce's skill and competencies are redefined (Achtenhagen et al., 2019). New unconventional, cross-sectoral high-level skills related to digitalization are replacing the need for manual and conventional lower-level skills and qualifications. Consequently, training skilled workforce with advanced competencies is crucial for economic growth and social advancement through digital transformation (Acemoglu and Autor, 2011). Higher vocational education, as the primary provider of higher-skilled talent (Kambourov, 2009), has been recognized as a significant factor in the context of digital economy development and has become a key topic on the agenda of governments (UNESCO, 2021). Various countries have introduced policies to guide their development, such as the EU's "2018-2020 Digital Education Action Plan" and “2021-2027 Digital Education Plan”, aimed at restructuring the vocational education talent training system and encouraging enterprises to participate in the digital transformation of vocational education. These measures aim to enhance employees' digital capabilities to meet the demands of the digital economy era. The vocational education and training (VET) system in China has proven its effectiveness in improving labor market outcomes. The vocational education and training (VET) system in China has demonstrated its effectiveness in improving labor market outcomes. According to the "Annual Report on Employment of Chinese Three Year Vocational College Graduates (2023)", in 2023, there were 2951 vocational colleges in China, with a total of 5.597 million graduates employed and an employment rate of 98.34%. In addition, the salary of graduates of higher vocational colleges has been growing steadily. The average starting salary of graduates in 2023 will reach 4082.2 yuan, an increase of 11.13% over 2021 (China Vocational Education Quality Annual Report Data Collection Platform). Especially in new occupations related to digital technology, such as live broadcast sales, industrial robots and industrial Internet, the salary advantage is more obvious. However, the World Economic Forum has also pointed out that vocational schools' service capabilities may struggle to keep pace with the changing labor market demands and that there may be limitations in the scope for reform and innovation. Therefore, the suitability of higher vocational education for the development needs of the digital economy and the potential for coordinated development between the two have become critical issues for the advancement of the digital economy.

In China, rapid digital economy growth has led to an increase in the demand for high-skilled workers, this question is particularly pressing. The government has acknowledged the pivotal role of vocational education in the nation's digitalization strategy and released a series of policies to support the reformation and modernization of vocational education, such as "Opinions on Promoting High-Quality Development of Modern Vocational Education" in 2021 and "Opinions on Deepening the Reform of the Modern Vocational Education System" in 2022 aim to support reformation and modernization of vocational education. According to the "China Vocational Education Development Report 2024," in 2023, there were 11,133 vocational colleges and schools

in China, producing approximately 10 million skilled graduates annually, and providing over 70% of the new employees in sectors such as modern manufacturing, strategic emerging industries, and modern services (Vocational Education Development Center, Ministry of Education, 2023). Thus, necessitating further inquiry into the outcomes of higher vocational education adapting to the digital economy. Has higher vocational education, propelled by the digital economy, realized high-quality development? Have the digital reforms in higher vocational education addressed the talent requirements of the digital economy? Is there a harmonious and coordinated development between vocational education and the digital economy? Answering these questions is a critical first step to drive rapid growth in the digital economy.

Existing literature has discussed the complex and multifaceted relationship between digital economy and vocational education. On the one hand, digital economy introduces shifts in the workforce's skill diversity and structure of employment, which driven the transformation of vocational education. Zhang et al. (2003) and Huaping et al. (2022) found that digital economy introduces shifts in the workforce's skill diversity and structure of employment, and Wang et al. (2023) also illustrated that digital economy equips higher vocational education with enhanced teaching services, resources, methodologies, platforms, and online tools, thus drive digital transformation within higher vocational education. However, Woolf et al. (2013) also pointed out that the drive to align talent cultivation with the accelerated demands of the digital economy may lead higher vocational education to diverge from its foundational mission of nurturing individuals who are well-rounded and comprehensive in their development. On the other hand, higher vocational education can facilitate the digital economy by nurturing technical and skilled talents, providing persistent technical vocational training, and engaging in educational and research initiatives. Poschauko et al. (2024), Zheng et al. (2024) and Tada et al. (2023) reported that higher vocational education can facilitate the digital economy by nurturing technical and skilled talents, providing persistent technical vocational training, and engaging in educational and research initiatives; nevertheless, Kerroum et al. (2020), Gkrimpizi et al. (2023) point out that education generally retains traditional ways and patterns and is slow in initiating and adopting swift changes in digital technology, such as the lag in building intelligent platforms for industry-education integration and the occurrence of the "information island" phenomenon (Sun et al., 2024) . In addition, there are significant regional differences in the contribution of higher vocational education to the digital economy. Wang et al. (2021) calculated the contribution rate of higher vocational education to economic growth and found that the contribution rate in the eastern region was 1.39%, higher than the 1.31% in the central region.

To date, the existing research has provided only a one-sided assessment of the contributions vocational education makes to the digital economy and the driving force the digital economy offers for the reform of vocational education. There has not been an in-depth analysis of the coordination mechanisms between higher vocational education and the digital economy, and appropriate indicators for accurate evaluation are lacking. Consequently, these studies have not provided a complete understanding of the relationship between higher vocational education and the digital economy. Moreover, few studies focus on their dynamic coupling coordination interactions with both temporal and spatial comparisons through quantitative analysis and case studies; let alone the exploration of factors influencing these interactions and strategies for coordination to

achieve a better state. Thus, it is necessary to use different new multivariate statistical analyses to explore their coupling coordination interaction mechanism, analyze the current coordinated development state, and explore their influencing factors, which will help us to take appropriate measures to achieve coordinated development of higher vocational education and the digital economy.

Given this, this study utilizes data from 31 provinces across China from 2013 to 2022, and adopts integrated Coupling Coordination Degree Model (CCDM) and gray correlation model to measure the interaction spatiotemporal heterogeneity between higher vocational education and digital economy and depict the main influencing factors of this interaction mechanism. Compared with other analytical methods like Structural Equation Model (SEM), CCDM in combination with grey correlation model can capture the dynamic changes in the coupling and coordination degrees of the two systems over time and space and identify the main factors affecting the coupling coordination degree, as demonstrated in recent studies of Liu Y et. al (2023) . Thus, with the combination of two models, this study mainly has the following three innovations and contributions. (1) Different from previous studies mainly focusing on the unilateral influence between higher vocational education and the digital economy, this paper emphasized the coupling coordination interaction of higher vocational education and the digital economy. Such discussion enriches the relationship between higher vocational education and the digital economy. (2) This paper explored the coupling coordination relationship between higher vocational education and the digital economy, bridging the research gap concerning their synergistic development, and more clearly defining the pivotal role that higher vocational education plays in facilitating the transformation and innovation within the digital economy. (3) Based on temporal-spatial comparisons and influencing factor analysis, we explored potential causes of better coordination in spatiotemporal heterogeneity between higher vocational education and the digital economy in China, which benefits policymakers to make more scientific strategic decisions to promote the coordinated growth of higher vocational education and digital economy according to the specific circumstances.

II. Conceptual background

1. The impact of higher vocational education on digital economy

As a type of education closely related to various levels of education and various aspects of society, vocational education can provide increasingly qualified graduates and professional technicians to facilitate digital economy development and upgradation. Previous studies prove that higher vocational education both positively and negatively affects the digital economy.

From a positive perspective, as the important cultivator of high-quality technical and skilled talents, higher vocational education plays a crucial role in fostering a digital economy (Mikheev et al., 2021) . Specifically, higher vocational education elevated the development of the digital economy through its multifaceted roles in talent cultivation, innovative research, and social vocational training. Firstly, from the aspect of talent

cultivation, higher vocational education can provide courses, practices, and internship opportunities to teach and train graduates and talents with advanced technical skills and a robust understanding of digital technologies (zhang X et al., 2024). The result not only elevated the knowledge and skill levels of the educated related to the digital economy, who become well-attuned to the demands of the digital economy (Wu and Liu, 2021); but also aided in the evolution of regional human capital structures from a primary to a more advanced configuration through knowledge spillover, which would foster to facilitate the substitution of advanced digital technologies for primitive ones, as well as accelerated application refinement, and innovation of digital technologies within the region (Hasanefendic et al., 2016). Goedhuys et al. (2014) demonstrated that an increase in the provision of high-quality skilled personnel by higher vocational education while reducing skill premiums, motivates enterprises to increase investments in skill-complementary machinery. This, in turn, accelerates the trend of skill-biased technological progress, thereby amplifying the functional and intrinsic value of digital economy initiatives. Secondly, higher vocational education includes research activities, some of which promote the advancements in key disciplines such as information technology are essential for understanding and managing information and for the successful application of digital technologies. As Such research pursuits accelerate the integration of digital technologies into traditional industry sectors. Kang (2024) showed that higher vocational education has fostered "integration of industry and education" programs that have led to collaborative efforts that have not only fostered the cultivation of highly skilled professionals but also breakthroughs in vital digital technologies, thereby expeditiously advancing the shift towards a digital economy. Thirdly, higher vocational institutes conduct social vocational training activities, such as non-academic vocational training and educational programs, and the quality and technical skills of the regional workforce would be enhanced. As Findeisen et al. (2022) pointed out, the result will help to expand the market for digital technology services within the region and furnish local enterprises with technical support. Such support is instrumental in facilitating the iterative updates of digital technologies, thereby accelerating the progression of the digital economy.

Higher vocational education also exerts negative influences on the digital economy. Firstly, compared to the rapidly evolving demands for talent during the digital economy, the curriculum design and course contents of higher vocational education exhibit a degree of inertia, resulting in a mismatch between the talents cultivation and digital economy's development requirements and status (Lund and Karlsen, 2022). For example, curriculum updates in higher vocational education are not keeping pace with the development of the digital economy, which leads to the graduates being less compatible with the actual digital economy needs. Makgato's (2020) study found that the VET needs to meet workplace expectations regarding practical skill training and vocational pedagogy, which places VET graduates in a dire position regarding employability. Secondly, as lack of long-term industry engagement partnerships, the scholarly and practical output of higher vocational education are less industry-focused or practice-oriented, consequently impeding the acceleration of the digital economy in the short term. For instance, as Rujira et al. (2020) argued, some higher vocational education faculties are unfamiliar with regional digital transform-related knowledge or lack regional digital transform-related practical experiences, making it challenging to keep up with the regional digital transform's current focus. Their research achievements and cultivation contribution are lagging compared with the market demands, thus reducing digital

economy efficiency.

2. The impact of digital economy on vocational education

The digital economy also has positive effects on higher vocational education. Firstly, the digital economy increased investment in educational funding and the construction of core digital infrastructures, such as information networks and platform systems, which would expand the coverage and application of digital construction within higher vocational education (Guo et al., 2023).

For example, García-Hernández et al. (2022) suggest that optimizing the infrastructure of higher vocational education can achieve precise allocation and rational matching of effective educational resources between different colleges, disciplines, and majors, ensuring continuity of investment in vocational institutions and promoting their efficient development. Secondly, digital transformation aims to reform the allocation of educational resources, educational structure, and teaching models, innovate higher vocational education, accelerate the transformation and innovation of the vocational education system, and improve the efficiency of vocational education development. Breaz et al. (2022) demonstrated that by collaborating with digital enterprises, higher vocational education departments can use digital technology to update electronic education platforms, explore new online teaching models, and enhance the competitiveness of local higher education departments from the perspective of infrastructure. In addition, the digital economy has enriched higher vocational education resources, promoted knowledge sharing, and improved students' learning efficiency. As shown by Xiao (2022), digital technologies such as "intelligent workshops" and "VR virtual scenes" provide technical support for practical training, which is conducive to the cultivation of practical skills for graduates. And Thomann et al. (2024) emphasized that significant potential in knowledge gains to employ IVR technology in vocational education. Thirdly, the extensive connectivity and low-cost transactions facilitated by the digital economy have enhanced the potential for cross-sector collaboration and cooperative development between vocational education and others. The research of Muammar et al. (2023) and Stephen (2020) confirmed that, with some new digital tools, higher vocational institutions can easily know the frontiers of the discipline domains and grasp industry needs and trends, develop appropriate educational strategies and curriculum designs, and help students adapt more effectively to career demands and market fluctuations, thereby accelerating the growth of higher vocational education (Jiang et al., 2024). Magagula et al.(2024) pointed that digital technology promoted the VET sector collaborating with labour industry, accepting 4IR technology as a learning tool in South Africa.

Meanwhile, the digital economy has also had a negative impact on higher vocational education. The more online educational content brought by the digital economy will increase the search cost for vocational college students. According to Geng et al. (2023), students often spend a lot of time searching for online resources during their self-directed learning process, which may lower their academic performance. In addition, there may be differences between the goals of the digital economy and higher vocational education, with the former primarily focusing on profits and market share, while the latter is dedicated to long-term educational outcomes

and student success. As demonstrated by Li et al. (2023) the pursuit of commercial interests in the digital economy has accelerated technological innovation, leading to continuous updates of digital tools and platforms. This dynamic undermines the creation of a stable and sustainable educational environment, which is a goal that higher vocational colleges are earnestly seeking to achieve. The necessity of quickly adapting to the constantly changing demands of new technologies may deviate from the basic education tasks of higher vocational colleges and may lead to improper allocation of resources for other key educational goals, thereby affecting the high-quality development of higher vocational education.

3. Mechanism for interaction of higher vocational education and digital economy

In conclusion, we can find from previous literature that higher vocational education and the digital economy affect each other positively and negatively, in other words, they have complex interactions (As shown in Fig. 1), moreover, the interactions between the two are nonlinear. On the one hand, the transformative effects of the digital economy have reshaped the traditional market ecosystem, resulting in a significant scarcity of high-quality technical and skilled talents within the labor market of the digital economy era, and promoting the digital transformation of higher vocational education. On the other hand, the economic benefits derived from the digital economy offer a robust driving force for the digital development of higher vocational education, and the continuous cultivation of digital talents in higher vocational education would be facilitated which would fulfill the needs of the digital economy. The mutually beneficial relationship between the two propels a deeper integration and collaborative development between the digital economy and higher vocational education. Therefore, we should explore the coordination relationship and internal mechanism between the two, and clarify what measures we can take to enhance their mutual positive influence and balance growth.

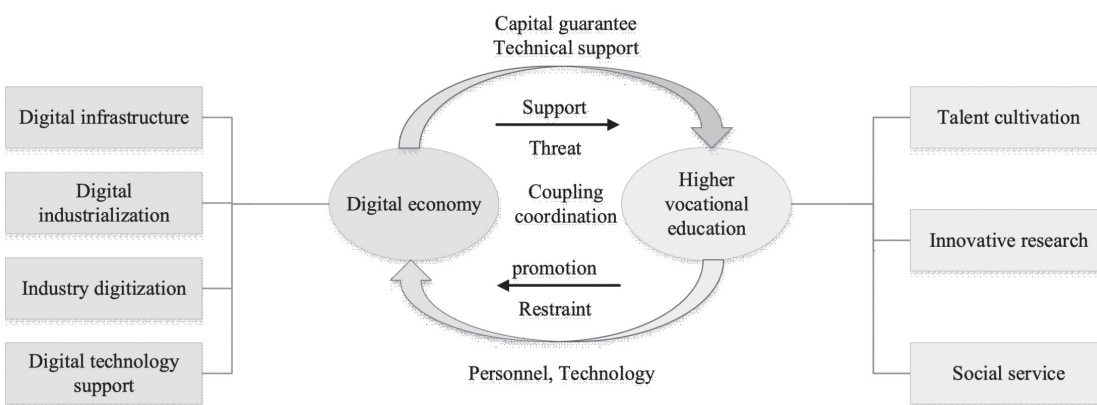


Fig. 1. The Conceptual framework of higher vocational education and digital economy

III. Research design

1. Construction of the indicator system

We construct a comprehensive evaluation system to evaluate the above two subsystem's development and coupling coordination status. The evaluation follows the following principles: first, indicators selected reflect critical dimenstions of higher vocational education and digital economy (su et.al, 2022; Wang et al.,2023; Sun et al,2023); second, metrics were sourced from widely cited studies or government report, such as Annual Report on the Quality of Higher Vocational Education, China Digital Economy Development Index Report, China's official Statistical Classification of the Digital Economy ; third, all indicators use publicly reported statistics from national yearbooks. We select the indicators through literature screening and qualitative analysis and thus construct the comprehensive evaluation system (See Table 1). In this comprehensive evaluation system, the higher vocational education subsystem has three dimensions and 8 indicators, and the digital economy has four dimensions and 10 indicators.

Specifically, based on the perspective of societal demand, we use talent cultivation, innovative research, and social vocational training as the control layers to comprehensively evaluate the development of the higher vocational education subsystem. Talent cultivation reflects the input in higher vocational education and its potential impact on nurturing graduates outcomes, including three index layers: "Education scale", "Education Quality" and "construction of teacher team". Innovation research demonstrates that higher vocational institutions engage in research activities that have direct relevance to industry needs, which are composed of two specific index layers: "R&D investment" and "Instructional Research investment". social vocational training represents higher vocational institutions that serve the social community by offering continuing education courses for both non-academic training and professional guidance to foster educational enhancement of lifelong learning and skill refinement in local members. And three specific index layers are selected: "Vocational skills cultivation", "Vocational skills cultivation" and "Continuing Education for the Employed Workforce".

Following the research of Bukht et al. (2017) and Zhang et al. (2024), and the "Statistical Classification of the Digital Economy and Its Core Industries (2021)" (National Bureau of Statistics, 2021) in National Bureau of Statistics, we finally selected ten indicators to measure digital economy from four control layers: digital infrastructure, digital industrialization, industrial digitization, and digital technology support. Among them, digital infrastructure represents the status of infrastructure and digital network that support the development of the digital economy, and three index layers are selected: "Internet Penetration Rate", "Mobile Telephony Services" and "Telecommunications Infrastructure". Digital economy comprises two major components: digital industrialization and industrial digitization, according to China Digital Economy Development White Paper (2017)(CAICT, 2017). The dimension of digital industrialization measures the technological industries that underpin digital transformation, which reflects the process of converting digital technologies into industries and services, encompassing all economic activities related to the provision of digital technologies, products, and

services. Specific indicators include the "ICT Workforce" and "Information Services Revenue". Meanwhile, the dimension of Industrial Digitization captures the new business models and economic activities enabled by digital transformation, which demonstrates the upgrading, transformation, and reengineering of traditional industries across their upstream and downstream chains, driven by next-generation digital science and technology. Key indicators include "Corporate Digitalization Level", "E-commerce", and "Digital Inclusive Finance Index". Digital technology support measures the updates and innovations in digital technology, which is composed of two index layers: "Technology Market Turnover" and "Technological Innovation" (Peng et al., 2025; Ding et al., 2024; Zhou, 2024; Guo et al.,2024).

2. Data sources

In this study, we choose the data from 31 provinces in China from 2013-2022 as the research sample to conduct in-depth explorations on the coupling coordination mechanism between higher vocational education and digital economy. The data used in this paper mainly come from the China Statistical Yearbook, China Educational Finance Statistical Yearbook, China Statistical Yearbook on Science and Technology, China Labor Statistical Yearbook, and the statistics on the official website of the Ministry of Education of China. The data related to the digital financial inclusion index comes from the Digital Finance Research Center of Peking University and the digital innovation index from the Enterprise Big Data Research Center of Peking University. These data are from the national authority, which shares high accuracy and reliability, making the results more convincing. We used the random forest algorithm to calculate the very few missing values.

Table 1. Evaluation index system of higher vocational education and digital economy.

System	Control layer	Index layer	Explanation of Index	Unit
digital economy system	Digital infrastructure D1	Internet Penetration Rate D11	The ratio of Internet broadband access subscribers to permanent resident	number/ person
		Mobile Telephony Services D12	Mobile internet users	Ten thousand households
		Telecommunications Infrastructure D13	Length of optic cables	Km
	Digital industrialization D2	ICT Workforce D21	Proportion of employees in information transmission, software, and information technology services to employed persons	%
		Information Services revenue D22	Software business revenue from subsectors classified under the digital core industry	Billion yuan

System	Control layer	Index layer	Explanation of Index	Unit
digital economy system	Industry digitization D3	Corporate Digitalization Level D31	Number of websites per 100 enterprises	number
		E-commerce D32	Ratio of E-commerce sales volume to local GDP	%
		Digital Financial Inclusion Index D33	Digital Inclusive Finance Index	/
	Digital technology support D4	Technology Market turnover D41	Technology Market Turnovers	Billion yuan
		Technological Innovation D42	Number of valid invention patents of ICT industries	patent
Higher vocational education system	Talent cultivation V1	Education scale V11	Number of higher vocational students at colleges	person
		Education Quality V12	Per Capita Expenditure on General Public Budget for Educational Undertakings	Yuan
		Construction of teacher team V13	Student-teacher ratio	%
	Innovative research V2	R&D investment V21	expenditure on R&D expenses	Million yuan
		Instructional Research investment V22	Value of teaching and research equipment per student	Million yuan
	social vocational training V3	Vocational skills cultivation V31	Funds Received for Non-academic Training	%
		Training Services V32	Funds Received for Non-academic Training	Million yuan
		Continuing Education for the Employed Workforce V33	Ratio of vocational enrollment to employment	%

3. Research methodology

3.1. The improved entropy method

The entropy method is an objective weighting method, which determines the weights according to the information provided by observed values of each index. When the traditional entropy weighting method is used to calculate the weights, when the entropy value tends to 1, a small difference in the entropy value will cause the weights to change exponentially, making the weights of some indicators incompatible with their importance. Some scholars, like Tian et al.(2021), have improved on the traditional entropy method while retaining its ability to widen the gap of index weights and makes up for the shortcomings of the traditional entropy method (Deng and Hu, 2024). And this paper draws lessons from the methods used by existing scholars to calculate index weights, the process is as follows:

(1) Standardize data. As the evaluation index data have different magnitudes and index attributes, we use the normalization method to standardize the data to enhance comparability between different indicators and mark the new standardized matrix as Zij. However, the data may be 0 after standardization. The standardized data are shifted by 0.0001 units to avoid such as meaningless situation.

The formulas are equations (1) and (2):

Positive indicators:

$$Z_{ij} = \frac{X_{ij} - Min(X_{ij})}{Max\left(X_{ij}\right) - Min(X_{ij})} + 0.0001, (i = 1,2,3\cdots n; j = 1,2,3\cdots m) \quad (1)$$

Negative indicators:

$$Z_{ij} = \frac{Max\left(X_{ij}\right) - X_{ij}}{Max\left(X_{ij}\right) - Min(X_{ij})} + 0.0001, \left(i = 1,2,3\cdots n; j = 1,2,3\cdots m\right) \quad (2)$$

Where Xij is the value of the j index in the i year, and Zij is the standardized data.

(2) Calculate the entropy value of each index. To avoid the influence of subjective elements, we use the entropy value method to determine the index weights and derive the comprehensive score of the digital economy and vocational education.

Y_{ij} represents the weight of the jth index in the ith year, and the formula is equation (3).

$$Y_{ij} = \frac{Z_{ij}}{\sum_{i=1}^{m} Z_{ij}} \ (i = 1,2,3\cdots n; j = 1,2,3\cdots m) \quad (3)$$

And H_j represents the entropy value of indicator j.

$$H_j = -\frac{1}{\ln n}\sum_{i=1}^{n} Y_{ij} lnY_{ij} \ \ (i = 1,2,3\cdots n, j = 1,2,3\cdots m) \quad (4)$$

(3) Calculate the weight of each index.

$$W_j = \frac{1 - H_j}{n - \sum_{j=1}^{n}(1 - H_j)} \quad (5)$$

3.2. Coupling coordination degree model

Coupling is based on the concept of coupling physics and describes the level of interaction between different systems (Cai et al., 2021). With the complexity of research problems, it has been gradually introduced into the field of social sciences. The coupling degree calculation is a way to measure the degree of correlation between systems. When there exists a relationship of mutual integration and promotion between the two systems, the coupling between the two systems is good. When there exist mutual constraints and restrictions between the two systems, the coupling between the two systems is poor (Ma, 2022). This paper used the model of coupling coordination degree to analyze the higher vocational education system and the digital economy system.

(1) Calculation of the combined score. The weight of each index and the weighted sum of each standardized value are used to calculate the combined score of the higher vocational education system and digital economy system.

$$V_i = \sum_{j=1}^{m} Z_{ij}^{V} W_j^{V}, \quad D_i = \sum_{j=1}^{m} Z_{ij}^{D} W_j^{D} \tag{6}$$

Where Vi and Di are the composite scores of the vocational education system and digital economy system, respectively. Z_{ij}^{V} Vand Z_{ij}^{D} D are the standardized values of each indicator of the vocational education system and digital economy system, respectively. W_j^{V} Vand W_j^{D} are the weights of each indicator of the vocational education system and digital economy system, respectively.

(2) Calculation of C. C is the coupling degree between higher vocational education and digital economy, C ∈ [0,1], and the value of is determined by the combined scores of the two systems of vocational education system and digital economy system.

$$C = \frac{\sqrt[2]{Z_i D_i}}{\left(Z_i + D_i\right)/2} \tag{7}$$

Where, the Z_i and D_i represent the combined scores of the vocational education system and digital economy, respectively. The greater the value of C, the stronger the interaction and influence between the two systems. Calculation of T. T is the degree of comprehensive coordination index between the vocational education system and the digital economy.

$$T = \alpha Z_i + \beta D_i \tag{8}$$

Where α and β are coefficients to be determined. Referring to the relevant literature, considering the mutual promotion and equally importance of higher vocational educational system and the digital economy, this paper assigns α and β are set at 0.5 respectively.

(3) Calculation of D. D is the degree of coupling and coordination development parameter between the vocational education system and digital economy, taking [0,1]. The larger the scale, the more coordinated the development level of the two systems, on the contrary, the lower degree of cooperation between the two systems.

$$D = \sqrt{C \times T} \tag{9}$$

To directly reflect the coordinated development degree of higher vocational education and digital economy,

the coupling coordination degree is subdivided into ten levels by referring to the research results of existing scholars, as shown in Table 2.

Table 2. Evaluation criteria of coupling coordination level (D).

Value	Grade	Value	Grade
0.00-0.09	Extreme imbalance	0.50-0.59	Barely coordination
0.10-0.19	Severe imbalance	0.60-0.69	Primary coordination
0.20-0.29	Moderate imbalance	0.70-0.79	Moderate coordination
0.30-0.39	Slight imbalance	0.80-0.89	Good coordination
0.40-0.49	Close to imbalance	0.90-1.00	Superior coordination

3.3. Influencing factor analysis

Gray correlation analysis is a statistical method to evaluate the relations of factors or indicators using gray correlation degree (GCD). It compares the similarity between the comparison and reference data columns and then determines the correlations between factors or indicators (Jiao et al.,2022). The consistency of the factors' changes means that GCD is close to 1; the inconsistency makes GCD closer to 0 (Zhou et al., 2022). The detailed procedures of influencing factor analysis are as follows.

(1) Determine the reference column and the comparison column. We aim to calculate the gray correlation between the higher vocational education system and the digital economy system, so we set the indicators of the higher vocational education system as the comparison series S_q, where q is the comparison sequence; we also set the indicators of the digital economy system as the reference series , where g is the reference sequence.

$$S_q = \left(S_q(1), S_q(2), S_q(3), \cdots, S_q(n),\right). q = 1,2,3, \cdots a \quad (10)$$

$$S_g = \left(S_g(1), S_g(2), S_g(3), \cdots, S_g(n),\right). g = 1,2,3, \cdots b \quad (11)$$

(2) Calculate the correlation degree $\rho maxmax\left|S_g(t) - S_q(t)\right|$ of the two series. The ρ is defined as 0.5.

$$\zeta_{gq}(t) = \frac{minmin\left|S_g(t) - S_q(t)\right| + \rho maxmax\left|S_g(t) - S_q(t)\right|}{\left|S_g(t) - S_q(t)\right| + \rho maxmax\left|S_g(t) - S_q(t)\right|} \quad (12)$$

(3) Define the new series by integrating the correlations of observed values to better depict the correlation between the series.

$$b^{(1)}(t) = \frac{b^{(1)}(t) + b^{(1)}(t-1)}{2}, t = 2,3, \cdots, n \quad (13)$$

(4) Calculate GCD of the two series (r_{gq})

$$r_{gq} = \frac{1}{n}\sum_{t=1}^{n} \zeta_{gq}(t) \tag{14}$$

(5) Arrange GCD between S_q and S_g in the form of a matrix.

IV. Empirical results and analysis

1. Comprehensive score and evolution of higher vocational education and digital economy

1.1. Comprehensive score and evolution of higher vocational education

According to formulas (6), the comprehensive score of higher vocational education of 31 provinces (cities) in China from 2013 to 2022 can be calculated, and the results are shown in Table 3.

From the perspective of temporal trends, the comprehensive score of higher vocational education across various provincial-level administrative regions in 2013 ranged from 0.149 to 0.287, which exhibited that the development of higher vocational education is at low levels, imbalance, and insufficiency. The comprehensive score of higher vocational education in 2022 increased to between 0.1514 and 3.560, which shows that higher vocational education in China is generally on the rise. And this is correlated to the background of the times when China has been attaching great importance to the development of higher vocational education in recent years. Firstly, since 2005, China successively enacted a series of policies, such as the Decision of the State Council on Vigorously Developing Vocational Education (The State Council [2005] No. 35), Decision of the State Council on Accelerating the Development of Modern Vocational Education (The State Council [2014] No. 19), National Vocational Education Reform Implementation Plan (The State Council [2019] No. 4), and Opinions on Promoting the High-Quality Development of Modern Vocational Education (The State Council [2021] NO. 30). These policies defined the legal status and well-defined developmental path for higher vocational education, which ascribed a more salient role to vocational education in the spheres of educational reform, innovation, and in driving economic and social progress. Moreover, policies have engendered a strong sense of confidence among investors. As an illustration, the year 2023 witnessed a total of 19 investment and financing occurrences within the vocational education sector, including 6 involving tens of millions and 8 in the hundreds of millions. The influx of this capital has provided the necessary material basis for the development of higher vocational education, promoting the improvement of educational facilities and the enrichment of educational resources. Hence, under the joint influence of policy guidance and capital investment, the caliber of higher vocational education in China has achieved significant enhancement. For example, driven by policies and economic development, Guangdong Province continues to deepen vocational education reform.

At present, higher vocational education accounts for about 50% of higher education in Guangdong Province. The number of students in vocational colleges has increased from 737,000 in 2017 to 2.805 million in 2022. From 2012 to 2022, these institutions have trained and delivered approximately 7.69 million technical elites to society, making significant contributions to Guangdong Province's consecutive ranking as the country's largest economy for many years. Secondly, China's higher vocational education actively adapts to regional industrial restructuring and transformation through measures such as adjusting professional settings, strengthening the integration of industry and education, innovating educational methods, and enhancing the construction of teaching staff. These measures not only promote the sustainable development of higher vocational education, but also significantly improve the quality of educational outcomes.

Table 3. Comprehensive score of higher vocational education

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	mean
Beijing	0.243	0.203	0.239	0.265	0.255	0.257	0.279	0.280	0.278	0.294	0.259
Tianjin	0.222	0.258	0.238	0.258	0.250	0.233	0.270	0.300	0.297	0.284	0.261
Hebei	0.273	0.206	0.220	0.236	0.241	0.253	0.299	0.302	0.294	0.279	0.260
Shanxi	0.217	0.248	0.225	0.215	0.214	0.239	0.280	0.284	0.332	0.345	0.260
Inner Mongolia	0.196	0.196	0.217	0.202	0.215	0.190	0.219	0.216	0.235	0.226	0.211
Liaoning	0.183	0.224	0.195	0.187	0.180	0.176	0.237	0.283	0.211	0.215	0.209
Jilin	0.166	0.178	0.155	0.164	0.172	0.156	0.215	0.195	0.211	0.213	0.182
Heilong jiang	0.197	0.224	0.264	0.223	0.180	0.162	0.167	0.181	0.206	0.240	0.204
Shanghai	0.234	0.255	0.270	0.261	0.279	0.285	0.296	0.274	0.210	0.189	0.255
Jiangsu	0.250	0.361	0.250	0.271	0.338	0.325	0.364	0.349	0.305	0.335	0.315
Zhejiang	0.287	0.300	0.372	0.269	0.338	0.292	0.446	0.405	0.356	0.315	0.338
Anhui	0.248	0.286	0.255	0.256	0.240	0.239	0.286	0.330	0.337	0.385	0.286
Fujian	0.221	0.230	0.216	0.209	0.218	0.224	0.299	0.297	0.271	0.260	0.245
Jiangxi	0.224	0.246	0.259	0.259	0.211	0.306	0.359	0.302	0.295	0.314	0.278
Shandong	0.247	0.281	0.297	0.306	0.306	0.288	0.345	0.330	0.392	0.308	0.310
Henan	0.215	0.261	0.259	0.288	0.291	0.313	0.332	0.359	0.392	0.488	0.320
Hubei	0.251	0.271	0.268	0.373	0.254	0.268	0.291	0.323	0.278	0.277	0.285
Hunan	0.248	0.293	0.252	0.271	0.275	0.278	0.290	0.339	0.351	0.340	0.294
Guang dong	0.278	0.304	0.275	0.309	0.328	0.341	0.353	0.483	0.441	0.438	0.355
Guangxi	0.180	0.203	0.210	0.233	0.230	0.262	0.305	0.297	0.304	0.338	0.256
Hainan	0.170	0.172	0.174	0.166	0.164	0.144	0.217	0.199	0.197	0.198	0.180
Chong qing	0.215	0.244	0.231	0.241	0.231	0.238	0.292	0.304	0.293	0.294	0.258
Sichuan	0.255	0.267	0.263	0.291	0.283	0.282	0.311	0.318	0.309	0.305	0.288
Guizhou	0.219	0.248	0.243	0.259	0.237	0.264	0.275	0.314	0.287	0.306	0.265

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	mean
Yunnan	0.189	0.271	0.248	0.231	0.249	0.259	0.325	0.335	0.277	0.226	0.261
Tibet	0.185	0.112	0.154	0.141	0.112	0.120	0.155	0.134	0.204	0.198	0.151
Shaanxi	0.255	0.263	0.255	0.237	0.248	0.236	0.299	0.318	0.261	0.228	0.260
Gansu	0.195	0.207	0.188	0.207	0.198	0.229	0.264	0.289	0.246	0.234	0.226
Qinghai	0.149	0.140	0.179	0.176	0.203	0.187	0.241	0.236	0.199	0.242	0.195
Ningxia	0.193	0.167	0.204	0.211	0.213	0.186	0.226	0.216	0.235	0.233	0.208
Xinjiang	0.188	0.205	0.207	0.222	0.233	0.228	0.256	0.236	0.255	0.284	0.231

For spatial changes, Fig. 2 shows the regional disparities from 2013 to 2022. Overall, there are significant differences in the comprehensive scores of higher vocational education in different regions, and this trend has been expanding in the past decade; Therefore, we can see that the development of higher vocational education in various provinces of China is relatively uneven. Among them, the career development level of eastern provinces such as Guangdong, Henan, Anhui, Shanxi, Zhejiang, and Hunan has improved, with a comprehensive score exceeding the threshold of 0.33 in 2022. Guangdong and Zhejiang provinces are typical representatives of higher vocational education in the eastern region, with abundant educational resources, superior educational infrastructure, and a strong faculty team synchronized with the region's economic prosperity. At the same time, provinces such as Anhui, Henan, and Hunan are vigorously promoting vocational education reform and development in the central region, each opening unique development paths. Hunan Vocational Education Science and Technology Park are a good example, which has received over 22 billion yuan in investment and developed more than 30 integrated industry education internship and training bases, including 6 national designated high skilled talent training bases. In contrast, the western and northeastern regions are significantly lagging, with slightly lower average comprehensive scores of 0.259 and 0.223 respectively in 2022, showing significant differences compared to the central and eastern regions. However, the accelerated growth of the economy in western China, such as the Chengdu Chongqing electronic industry cluster and the expansion of cross-border logistics industries in Guangxi, has intensified the demand for high skilled labor. This surge has stimulated investment and policy reforms in higher vocational education, resulting in measurable improvements in its development. For example, the vocational education system in Sichuan has expanded. By 2022, Sichuan will have 539 colleges and 1.644 million students, ranking seventh and fifth in the country respectively. The gap in the development of vocational education can be attributed to two main factors: firstly, the serious imbalance in inter provincial resource investment is evident, and among the 31 provinces in China, this imbalance gradually decreases from the eastern coastal provinces to the inland areas. Secondly, the relatively lagging development of vocational education in some provinces can be attributed to various factors, including geographical location, economic development level, industrial sector structure, and strategic deployment of educational resources.



Fig. 2. Spatial Variations of higher vocational education' comprehensive score.

1.2. Comprehensive score and evolution of digital economy

Table 4 describes the time course of the comprehensive score reflecting the digital economy from 2013 to 2022. Broadly speaking, the development of the digital economy continues to rise, with an average comprehensive score increasing from 0.160 in 2013 to 0.346 in 2022. More notably, the digital economy has significantly improved in all 31 provinces. For example, Beijing's comprehensive score has increased from 0.340 in 2012 to 0.525 in 2022, while Guizhou's has increased from 0.103 to 0.275. In fact, under the joint influence of government policies, strategic regional economic restructuring, and enterprise efforts to reduce costs and improve efficiency, the digitalization process of digital and traditional industries has significantly accelerated. This stimulated the development of digital economy in Chinese provinces and cities from 2013 to 2022. At present, China's digital economy has entered a stage of rapid expansion, with strong momentum in the digital transformation of traditional industries, exponential development of digital transformation infrastructure, and continuous emergence of new business forms and models. Data shows that from 2016 to 2022, the overall scale of China's digital economy continued to grow, reaching 50.2 trillion yuan in 2022, a year-on-year increase of 10.3%.

Table 4. Comprehensive score of digital economy.

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	mean
Beijing	0.340	0.339	0.380	0.393	0.462	0.483	0.515	0.572	0.638	0.525	0.465
Tianjin	0.142	0.157	0.189	0.196	0.220	0.248	0.280	0.296	0.331	0.316	0.237
Hebei	0.149	0.176	0.208	0.237	0.277	0.305	0.329	0.344	0.371	0.354	0.275
Shanxi	0.119	0.140	0.163	0.177	0.201	0.227	0.234	0.246	0.272	0.277	0.206
Inner Mongolia	0.108	0.131	0.157	0.175	0.205	0.214	0.233	0.250	0.269	0.269	0.201
Liaoning	0.157	0.185	0.217	0.238	0.265	0.278	0.293	0.312	0.335	0.326	0.261

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	mean
Jilin	0.109	0.137	0.155	0.149	0.174	0.203	0.205	0.218	0.231	0.228	0.181
Heilong jiang	0.101	0.125	0.151	0.162	0.201	0.213	0.222	0.242	0.244	0.251	0.191
Shanghai	0.275	0.328	0.348	0.366	0.396	0.424	0.452	0.481	0.523	0.503	0.410
Jiangsu	0.325	0.323	0.386	0.419	0.473	0.492	0.525	0.570	0.610	0.505	0.463
Zhejiang	0.277	0.299	0.355	0.374	0.426	0.455	0.480	0.517	0.560	0.504	0.425
Anhui	0.163	0.181	0.224	0.257	0.293	0.324	0.344	0.363	0.394	0.384	0.293
Fujian	0.200	0.207	0.230	0.244	0.283	0.321	0.331	0.339	0.368	0.347	0.287
Jiangxi	0.136	0.160	0.190	0.192	0.241	0.277	0.292	0.312	0.339	0.326	0.247
Shandong	0.193	0.219	0.266	0.311	0.350	0.382	0.398	0.432	0.482	0.433	0.347
Henan	0.141	0.168	0.205	0.228	0.265	0.297	0.307	0.329	0.358	0.367	0.267
Hubei	0.171	0.183	0.216	0.243	0.283	0.308	0.337	0.363	0.391	0.376	0.287
Hunan	0.148	0.172	0.200	0.212	0.256	0.280	0.292	0.318	0.350	0.359	0.259
Guang dong	0.309	0.350	0.400	0.436	0.508	0.550	0.585	0.635	0.696	0.554	0.502
Guangxi	0.117	0.121	0.097	0.111	0.154	0.191	0.228	0.267	0.302	0.313	0.190
Hainan	0.145	0.169	0.195	0.206	0.232	0.241	0.247	0.243	0.279	0.281	0.224
Chong qing	0.142	0.165	0.187	0.214	0.247	0.281	0.296	0.315	0.347	0.366	0.256
Sichuan	0.173	0.214	0.261	0.295	0.337	0.371	0.411	0.417	0.447	0.434	0.336
Guizhou	0.103	0.119	0.132	0.159	0.180	0.206	0.217	0.237	0.265	0.275	0.189
Yunnan	0.127	0.148	0.179	0.173	0.201	0.227	0.246	0.263	0.284	0.291	0.214
Tibet	0.069	0.095	0.132	0.157	0.178	0.190	0.221	0.198	0.220	0.227	0.169
Shaanxi	0.152	0.184	0.207	0.221	0.249	0.274	0.300	0.322	0.354	0.345	0.261
Gansu	0.095	0.120	0.145	0.161	0.193	0.212	0.230	0.243	0.275	0.268	0.194
Qinghai	0.086	0.108	0.166	0.166	0.170	0.183	0.188	0.191	0.233	0.245	0.174
Ningxia	0.099	0.115	0.135	0.144	0.175	0.193	0.203	0.216	0.247	0.248	0.177
Xinjiang	0.094	0.106	0.129	0.132	0.156	0.187	0.190	0.205	0.246	0.232	0.168

From 2013 to 2022, there were significant differences in the spatial distribution of China's digital economy in different regions, showing a characteristic of “high in the east and low in the west” (see Fig. 3). Specifically, the pattern of China's digital economy presents a clear hierarchical pattern: the first tier is represented by Zhejiang, Guangdong, Beijing, Shanghai, and Jiangsu, most of which are located in the eastern region, with comprehensive scores above 0.5 for each region, thus forming significant differences from other provinces and cities. The second tier is mainly located in the central region, including Hebei, Shandong, Anhui, Henan, Hubei, Tianjin, Liaoning, Fujian, Jiangxi, Guangxi, Chongqing, and Sichuan, consisting of 13 provinces with scores ranging from 0.31 to 0.5, indicating enormous potential for future growth. The third level is mainly composed of provinces in the western and northeastern regions, such as Shanxi, Inner Mongolia, Jilin,

Heilongjiang, Hainan, Guizhou, and Yunnan Tibet、 Gansu, Qinghai, Ningxia, and Xinjiang have relatively low comprehensive scores in digital economy development and need to improve their digital level in the future. In addition, the differences in the development of the digital economy are mainly due to the different stages of its evolution. Under the advanced application and innovation of digital technology, the huge market size, and the promotion of more mature digital industries, the eastern region has effectively concentrated resources, formed a strong digital economic infrastructure, and a solid growth foundation. At the same time, the central region has shown a strong upward trend in the application and innovation of digital technology, thanks to its good development in equipment manufacturing, electronic information, new materials, and abundant scientific and educational resources. The industrial foundation in the western region is relatively underdeveloped, and the pace of digital technology application and innovation is slow. For example, Alibaba, a global leader in the digital economy, was established in Zhejiang; However, there are almost no leading enterprises related to the digital economy in the western region.

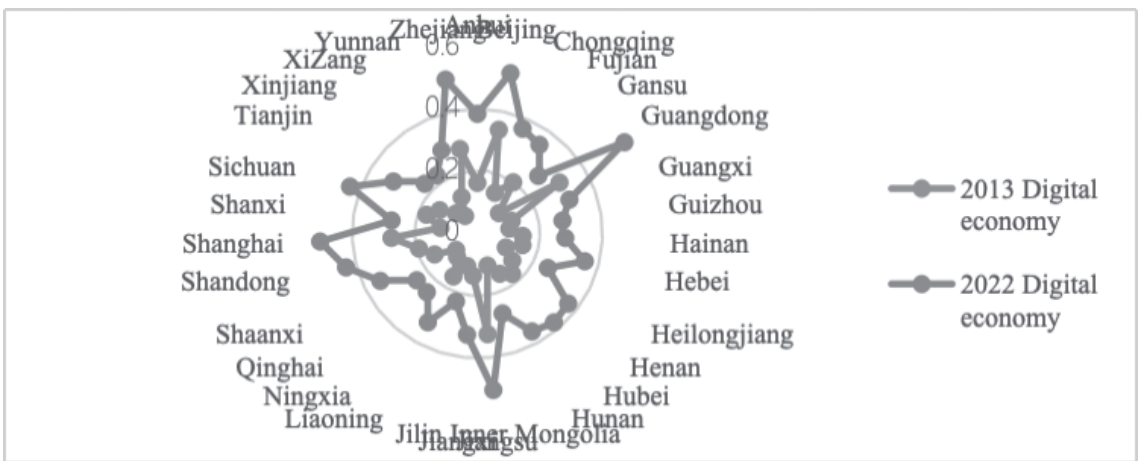


Fig. 3. Spatial variations of digital economy' comprehensive score.

2. Temporal changes and spatial variations of coupling coordination degree

2.1 Temporal changes of coupling coordination degree

Table 5 shows the coupling degree, coordination degree, and coupling coordination degree of each province over the years, and the results reveal that the coupling coordination between higher vocational education and the digital economy in Chinese provinces is on a continuous and stable upward trajectory, with the average index climbing from 0.4262 in 2013 to 0.555 by 2022. Furthermore, five grades were involved from 2013 to 2022: the lowest was the "slight imbalance grade" (0.30-0.39), and the highest was the "moderate coordination" (0.70-0.79). In general, the coupling coordination degree of regions escalated relatively steadily by one or

two grades, specifically, 58.1% (18 of 31) regions escalated by one grade, while 41.9% (13 of 31) escalated by two grades. Among them, the regions escalated into one grade are classified into three types: (1) Jilin, Ningxia, and Tibet have experienced an upward from the “slight imbalance” to “close to imbalance” category; (2) Fujian, Hebei, Hubei, Jiangxi, Liaoning, Shanxi, Shaanxi, Tianjin, Yunnan, and Chongqing have seen their status improve from “close to imbalance” to “primary coordination”; (3) Beijing, Jiangsu, and Zhejiang have demonstrated further enhancement from “barely coordination” to the “primary coordination” category. The regions in type (1) remained at the imbalance grades, indicating that these regions had not invested enough or made insufficient efforts to promote the coordinated development of higher vocational education and the digital economy in recent years. Type (2) and (3) showed that these regions had a relatively more stable and continuous investment in achieving the coordinated growth between higher vocational education and digital economy. Besides, regions escalated into two grades also can be divided into three types: (1) Gansu, Guangxi, Guizhou, Heilongjiang, Inner Mongolia, Qinghai, and Xinjiang have moved from “slight imbalance” to “primary coordination”; (2) Anhui, Henan, Hunan, Shandong, and Sichuan transitioned from “close to imbalance” to “primary coordination”. (3) Guangdong updated from “primary coordination” to “moderate coordination”. The increasing coordination coupling degree of these regions was they stimulated the output of the two subsystems (such as patents output and software business revenue) by increasing higher vocational education and digital economy investment (such as expenditure on research activities in both higher vocational education and digital economy).

Furthermore, upon careful examination of the degree of coupling and coordination between the two systems, it is evident that the characteristics of higher vocational education and the digital economy are characterized by a state of "high coupling and low coordination". Specifically, the coupling degree between the two systems is robust, and the overall coupling degree is significantly high, with an average of 0.971 in 2013 and 0.9881 in 2022, indicating that the system has been in the coupling stage. On the contrary, the coordination degree is relatively low, with an average value ranging from 0.1897 microliters in 2013 to 0.3155 microliters in 2022. Despite some growth, progress is slow and the level of coordinated development remains low. This means that although there is a close connection between higher vocational education and the digital economy, effective synergies have not been achieved in practical operations. The fundamental reason is mainly attributed to the insufficient adaptability of higher vocational education to the demands of the digital economy, characterized by a "low matching rate" between educational courses and talent needs. This mismatch has led to a significant gap between China's vocational education and its broader economic, social, and skilled workforce development goals, thereby hindering the harmonious development of these two subsystems.

Table 5. Temporal Changes of coupling degree, coupling degree, and coupling coordination degree

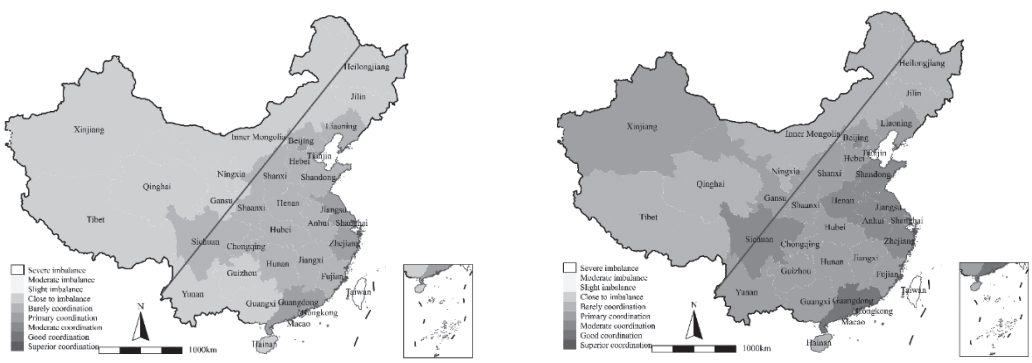
	Coupling degree		Coordination degree		Coupling coordination degree	
	2013	**2022**	**2013**	**2022**	**2013**	**2022**
Beijing	0.986	0.959	0.292	0.410	0.536	0.627
Tianjin	0.975	0.999	0.182	0.300	0.421	0.547
Hebei	0.956	0.993	0.211	0.317	0.449	0.561
Shanxi	0.957	0.994	0.168	0.311	0.401	0.556
Inner Mongolia	0.957	0.996	0.152	0.247	0.381	0.496
Liaoning	0.997	0.979	0.170	0.271	0.412	0.515
Jilin	0.978	0.999	0.138	0.221	0.367	0.470
Heilongjiang	0.947	0.999	0.149	0.246	0.376	0.496
Shanghai	0.997	0.891	0.254	0.346	0.503	0.555
Jiangsu	0.992	0.979	0.288	0.420	0.534	0.641
Zhejiang	1.000	0.973	0.282	0.410	0.531	0.632
Anhui	0.978	0.999	0.205	0.385	0.448	0.620
Fujian	0.999	0.990	0.211	0.303	0.459	0.548
Jiangxi	0.970	0.999	0.180	0.320	0.418	0.566
Shandong	0.992	0.986	0.220	0.371	0.467	0.604
Henan	0.978	0.990	0.178	0.428	0.418	0.651
Hubei	0.982	0.989	0.211	0.327	0.455	0.568
Hunan	0.967	0.999	0.198	0.350	0.437	0.591
Guangdong	0.999	0.993	0.294	0.496	0.541	0.702
Guangxi	0.977	0.999	0.149	0.326	0.381	0.570
Hainan	0.997	0.985	0.158	0.240	0.396	0.486
Chongqing	0.979	0.994	0.179	0.330	0.418	0.573
Sichuan	0.982	0.985	0.214	0.370	0.459	0.603
Guizhou	0.934	0.999	0.161	0.291	0.388	0.539
Yunnan	0.981	0.992	0.158	0.258	0.394	0.506
Tibet	0.889	0.998	0.127	0.213	0.336	0.460
Shaanxi	0.968	0.979	0.203	0.286	0.444	0.529
Gansu	0.939	0.998	0.145	0.251	0.369	0.501
Qinghai	0.963	0.999	0.117	0.244	0.336	0.494
Ningxia	0.947	0.999	0.146	0.240	0.372	0.490
Xinjiang	0.942	0.995	0.141	0.258	0.364	0.507

2.2. Spatial variations of coupling coordination degree

As showed in Fig. 4, the coordination between the digital economy and higher vocational education across China are characterized by geographically "high in the eastern area and low in the western area". Specifically, the coupling and coordination degree in the eastern region ranks first, with five provinces featuring prominently in the top ten rankings for their coupling coordination levels. During the research period, Guangdong, Jiangsu, and Zhejiang have been at the forefront of the coordination between higher vocational education and digital economy in China, whose mean coupling coordination degrees of 0.645, 0.614, and 0.612 for the year 2022, respectively. The central region ranks second in terms of coupling coordination levels, with Henan, Hunan, and Hubei having coupling coordination degrees of 0.536, 0.521, and 0.531 for year 2022, respectively. Conversely, the northwestern region represented by Ningxia and Qinghai, and the northeastern region represented by Jilin and Heilongjiang, exhibit an almost uncoordinated state, with mean coupling coordination degrees of 0.435, 0.426, 0.424, and 0.44 in 2022, respectively. Moreover, the coupling and coordination degree between higher vocational education and digital economy in China is showing a clustering trend. Guangdong is part of the "Pearl River Delta" and leads in this indicator. Zhejiang and Jiangsu follow closely in the "Yangtze River Delta", while Beijing and Shandong in the "Bohai Rim region", as well as central and western provinces such as Henan and Sichuan, also rank high. In sharp contrast, regions with lower coordination indices are mainly located in the western and northeastern regions.

The fundamental reason is that there are differences in the level of digital economy development and vocational education investment among provinces, leading to varying degrees of coupling and coordination between higher vocational education and the digital economy. Firstly, the differences in the development of digital economy among provinces lead to inconsistencies between the specific needs of digital economy and the curriculum design and educational resources of higher vocational education system. The eastern coastal regions and some central provinces have made more significant progress in the development of the digital economy, with digital industries accounting for a large proportion in provinces such as Guangdong, Zhejiang, and Jiangsu, exceeding 50% of their respective gross domestic product. At the same time, the growth rate of the digital economy in the central region exceeded that of the eastern coastal areas, reaching 22.9%, and the proportion of digital economy in GDP in Henan, Hubei, Hunan and other regions reached as high as 30%. The strong growth of the digital economy in the central and eastern regions has not only stimulated industrial restructuring and progress, but also catalyzed the birth of new business models and industries. This in turn has prompted people to pay more attention to the digital transformation of higher vocational education and jointly promote the integration of higher vocational education and the digital economy. In sharp contrast, the digital economy in the western and northeastern regions lags behind, with their digital industries typically accounting for less than 20% of their gross domestic product. The underdeveloped state of the digital economy in these regions has led to a fragile industrial foundation and insufficient demand for skilled professionals, thereby limiting the scope of talent cultivation in higher vocational education and hindering its digital development. Essentially, this has led to a disharmony between the supply of higher vocational education and the demand of the digital economy.

Secondly, there are significant differences in policy support and resource investment for higher vocational education among provinces. The eastern and central regions, characterized by strong policy support and significant education funding, have achieved higher levels of higher vocational education, which in turn provides stronger support for digital economy initiatives. For example, Guangdong Province has shown a clear commitment to the development of higher vocational education, launching a series of policy measures aimed at cultivating reform and innovation in the industry. From 2012 to 2021, the total investment in higher vocational education in Guangdong Province soared to 448.663 billion yuan, significantly enhancing the province's comprehensive strength and educational quality in this field, placing it in a leading position in the country. There are 95 independently established higher vocational colleges in the province, and the dense concentration of higher vocational education resources provides a solid talent foundation for the expansion of the digital economy in Guangdong region. Therefore, Guangdong Province has become a pioneer in the coordinated development of higher vocational education and digital economy in China. In contrast, the northwest region represented by Ningxia and Qinghai, and the northeast region represented by Jilin and Heilongjiang, have seen a continuous increase in investment in higher vocational education in recent years, but still lag behind the national average level. Overall, there is an imbalance in the scale of higher vocational education between the western and northeastern regions, with lower levels of education and talent cultivation compared to the central and eastern regions. Their contribution to the digital economy is relatively small, which hinders the creation of a nurturing environment conducive to the integration and development of vocational education and the digital economy. This difference results in almost insufficient coordination between the two systems.



(a) (b)

Fig. 4. Spatial Variations of coupling coordination degree; (a)2013; (b)2022

3. Influencing factors

The temporal and spatial changes of coordination and coupling degree are affected by many factors of both higher vocational education and digital economy subsystems. To explore the main influencing factors, we obtain the gray correlation degree matrix in the year 2013 and 2022 (See Table 6), respectively, which clearly

explains the main influencing factors and constraints of higher vocational education and digital economy and demonstrates that there are close interactions and correlations among the two subsystems' elements. The detailed results are as follows.

3.1 Influencing of higher vocational education on digital economy

Our research first explores the role of higher vocational education in shaping the digital economy. In 2013, the GCDs for the dimensions of "talent cultivation (V1)", "innovative research (V2)", and "social vocational training (V3)" were 0.921, 0.928, and 0.920, respectively, indicating an exceptionally strong correlation between higher vocational education and the digital economy. It is worth noting that within the specific indicator range, "teaching and research investment" (V22, 0.935), "continuing education for employed labor force" (V33, 0.945), "education scale" (V11, 0.931), "vocational skills training" (V31, 0.921), and "research and development investment" (V21, 0.920) stand out with the highest GCD values, indicating that they play a key role in influencing the digital economy. This result indicates that the expansion of research results and digital skills training scale can effectively help enterprises undergoing digital transformation significantly improve operational efficiency and competitiveness. Therefore, increasing investment in higher vocational education can increase its scale, help cultivate more qualified talents, and generate more research results related to the digital economy, thereby promoting the development of regional digital economy. In 2013, higher vocational education experienced a period of vigorous development, characterized by the increasing attractiveness of the higher vocational education sector and the continuous improvement of educational standards. The expansion of higher vocational education and the cultivation of a higher skilled talent pool have indeed further promoted the coordinated development of higher vocational education and the digital economy, aligning educational goals with the constantly changing needs of the digital economy.

The comparative analysis of influencing factors from 2013 to 2022 reveals several convincing new insights: (1) a decrease in system correlation. In 2013, the correlation between higher vocational education and the digital economy was high, but it has since declined. The GCD of all indicators has significantly decreased. For example, the GCD (V1) for talent cultivation decreased from 0.921 to 0.873; Innovation research (V2) decreased from 0.928 to 0.860; Social vocational training (V3) has decreased from 0.920 to 0.885. The decline in GCD value can be attributed to the rapid development of the digital economy, which has put forward new requirements for talent cultivation and practical teaching methods, and higher vocational education has not yet fully adapted to these requirements.

Table 6. Gray correlation matrix of higher vocational education (V1-3) and digital economy (D1-4); (a)2013; (b)2022

2013		V1			V2			V3		mean	mean
		V11	V12	V13	V21	V22	V31	V32	V33		
D1	D11	0.938	0.931	0.931	0.923	0.959	0.921	0.906	0.957	0.933	0.933
	D12	0.963	0.922	0.926	0.943	0.936	0.930	0.901	0.944	0.933	
	D13	0.954	0.917	0.938	0.942	0.940	0.930	0.897	0.944	0.933	
D2	D21	0.923	0.941	0.892	0.900	0.957	0.905	0.922	0.953	0.924	0.913
	D22	0.913	0.875	0.919	0.906	0.908	0.932	0.866	0.893	0.902	
D3	D31	0.922	0.924	0.887	0.914	0.934	0.920	0.912	0.931	0.918	0.922
	D32	0.927	0.972	0.850	0.899	0.930	0.896	0.970	0.948	0.924	
	D33	0.940	0.938	0.923	0.921	0.965	0.918	0.912	0.966	0.926	
D4	D41	0.907	0.881	0.952	0.914	0.912	0.926	0.863	0.911	0.908	0.910
	D42	0.923	0.885	0.925	0.937	0.912	0.933	0.871	0.909	0.912	
mean		0.931	0.919	0.914	0.920	0.935	0.921	0.902	0.935		
mean			0.921		0.928			0.920			

2022		V1			V2			V3		mean	mean
		V11	V12	V13	V21	V22	V31	V32	V33		
D1	D11	0.887	0.909	0.939	0.809	0.889	0.859	0.871	0.931	0.887	0.886
	D12	0.958	0.913	0.856	0.863	0.866	0.880	0.907	0.897	0.892	
	D13	0.940	0.884	0.875	0.845	0.835	0.862	0.876	0.901	0.878	
D2	D21	0.875	0.927	0.845	0.838	0.937	0.875	0.919	0.899	0.889	0.868
	D22	0.839	0.850	0.741	0.885	0.826	0.916	0.904	0.817	0.847	
D3	D31	0.861	0.896	0.843	0.819	0.903	0.869	0.892	0.897	0.872	0.893
	D32	0.893	0.956	0.830	0.872	0.924	0.907	0.964	0.900	0.906	
	D33	0.898	0.946	0.912	0.833	0.911	0.873	0.899	0.945	0.902	
D4	D41	0.828	0.786	0.749	0.802	0.785	0.810	0.809	0.799	0.796	0.833
	D42	0.881	0.876	0.785	0.897	0.856	0.906	0.923	0.842	0.871	
mean		0.886	0.894	0.838	0.846	0.873	0.876	0.896	0.883		
mean			0.873		0.860			0.885			

(2) The transformation of key influencing factors. The main influencing factors have shifted from “teaching and research investment” (V22) and “research and development investment” (V11) to “training services” (V32) and “education quality” (V12). The main influencing factors have shifted from “teaching and research

investment" (V22) and "research and development investment" (V11) to "training services" (V32) and "education quality" (V12). In 2013, "teaching and research investment" (V22, 0.935) and "research and development investment" (V11, 0.920) were important factors, but by 2022, their impact has weakened, with GCD values of 0.873 and 0.846, respectively. In contrast, "training services" (V32, 0.896) and "education quality" (V12, 0.894) became the most influential factors in 2022. This shift indicates that with the improvement of digital infrastructure, the contribution of investment to the digital economy has weakened, and additional investment in research and teaching has not led to effective transformation or adaptation to constantly changing industrial upgrading needs. Therefore, the driving factor has shifted from investment to the quality of education and training services, which is more directly related to the demand of the digital economy.

To address these challenges, targeted measures must be implemented to strengthen the coupling and coordination between higher vocational education and the digital economy. For example, by adopting new digital tools and platforms to improve the quality of education and training services, the transformation of higher vocational education can be strengthened; Strengthen the integration of industry and education, develop specialized education and training plans to meet the specific needs of the regional digital economy.

3.2 Influencing of the digital economy on higher vocational education

In 2013, from the dimension's perspective, the GDC of digital infrastructure (D1) was 0.933, and digital industrialization (D2), industry digitization (D3), and digital technology support (D4) were 0.913, 0.926, and 0.910 respectively, indicating that digital economy-related professional contribution to improving sustainable higher vocational education has shown obvious importance. In addition, in terms of specific indicators, "Internet penetration rate" (D11, 0.933), "Mobile telephony services" (D12, 0.933), "Telecommunications infrastructure" (D13, 0.933) were the most influential factors, which proves that the modern infrastructure of digital economy contributes to the better growth of higher vocational education and the better coordination interactions between higher vocational education and digital economy. Furthermore, "ICT Workforce" (D21, 0.924), "E-commerce" (D32, 0.924), and "Digital financial inclusion index" (D33, 0.926) also strongly impacted higher vocational education, indicating that increasing digital economy-related employees, revenues and application of digital technology are conducive to supporting the development of higher vocational education from the human resource, financial perspective, and technical application. These findings are the insights for those who wish to use the digital economy to develop higher vocational education: they should know what they can do more effectively and efficiently.

Comparing the influencing factors between 2013 and 2022, there are several noteworthy developments: (1) there is a discernible downward trend in the degree of influence, with digital infrastructure (D1) experiencing a decline from 0.933 to 0.886, digital industrialization (D2) slipping from 0.912 to 0.868, industry digitization (D3) receding from 0.922 to 0.893, and digital technology support (D4) plummeting from 0.910 to 0.833. This trend indicates that there is a lingering important influence of the digital economy on higher vocational education, the explosive growth of the digital economy has introduced fresh demands for the cultivation of

talent and the enhancement of practical teaching methodologies within the realm of higher vocational education. However, the adaptability of higher vocational education to these new demands of the digital economy exhibits a degree of latency, consequently leading to a waning impact of digital economy on higher vocational education. (2) In specific indicators, we can find that the most influential factor shifts with a transition from "Internet penetration rate" (D11, 0.887), "Mobile telephony services" (D12, 0.892), "Telecommunications Infrastructure" (D13, 0.878) to "E-commerce" (D32, 0.906) and "Digital financial inclusion index" (D33, 0.902). This shift illustrates that industry digitization has supplanted digital infrastructure as a critical influence on higher vocational education. As digital infrastructure matures, its influence on higher education has diminished, yet the swift growth of industry digitization has amplified the productivity of enterprises related to the digital economy, creating a spillover effect that allows higher education to reap "Digital dividends". Thus, the educational content, resources, and instructional approaches within higher vocational education should undergo continuous transformation in tandem with the digital metamorphosis of the industry.

In conclusion, higher vocational education and the digital economy are closely interacting and influencing each other; their dimensions and indicators have constantly interacted tightly with strong coupling coordination effects. The development of higher vocational education is conducive to promoting digital economy-related innovation and technological progress, increasing the output of the digital industry; the improvement of the digital economy accelerates the digital transformation of higher vocational education, optimizes higher vocational education teaching modes, expands its teaching resources, improves students' performances, and enhances higher vocational education's overall competitiveness. In addition, we can find that "Talent cultivation", "Training Services" and "Industry digitization" dimensions are the more influential dimensions: higher vocational education provides sufficient technical and skilled talents to support digital economy growth, and industry digitization makes higher vocational education enjoy the "digital dividends" of digital economy growth.

V. Discussion and Policy recommendation

1. Discussion

This section compares the results with other studies and obtains several new discussion topics.

First, this study finds that the development of coupling coordinated degrees between China's higher vocational education and digital economy has shown a steady ascent, characterized by "high coupling with low coordination", which highlight the dynamic and evolving nature of their relationship that previous studies have not emphasized. Our finding aligns with the developmental history of the digital economy and higher vocational education in China. During the period from 2006 to 2011, issues related to training objectives, teaching methods, funding, and institutional mechanisms at higher vocational institutions led to a low degree of alignment between higher vocational education and regional economic and social development. However, with

the intensification of demands for regional digital economic progression, coupled with clear national positioning and robust policy support for the development of vocational education, continuous reforms have been made in the approaches and philosophies of running educational institutions, as well as in talent cultivation strategies and goals. Efforts through industry-education integration, school-enterprise collaboration, and the nurturing of technically skilled talents have effectively served the regional digital economic development. This has fostered a "high coupling" relationship between higher vocational education and digital economy, with a consistently improving degree of fit with the digital economy. Yet, as the digital economy has accelerated, the systemic reforms in higher vocational education have struggled to fully accommodate the swift developmental demands. The proficiency in specialized development, educational paradigms, and resource allocation at higher vocational colleges have not been entirely in sync with the exigencies of regional digital transformation. Their potential to aid in regional economic reconfiguration and to catalyze digital transformation remains underutilized, culminating in a "low coordination" development scenario between higher vocational education and digital economy, as Geng et al. (2023) proved that Yangtze River economic belt had a low degree of coordination between higher vocational education and the digital economy.

Second, this study finds that the coupling development between higher vocational education and the digital economy across China's 31 provinces has noticeable spatial differences, with a spatial hierarchy of "Eastern region > Central region > Western region". Compared with the findings of Bai et al. (2023), our finding provides a more nuanced understanding of the spatially varied nature of this relationship. Specifically, regional heterogeneity of notable spatial clustering and regional consolidation, with the Pearl River Delta, Yangtze River Delta, and Jing-Jin-Ji (Beijing-Tianjin-Hebei) region standing out as vanguard areas for coordinated development. As Geng et al. (2023) highlight that Eastern coastal and central regions are endowed with abundant superior flatlands for social development, convenient transportation, a giant population (sufficient laborers and consumers), a long history in education and innovation, and sufficient fiscal revenue, which are conducive to the coordinated growth of higher vocational education and digital economy in China. Our study further confirms that regional development differences in higher vocational education and digital economy lead to distinct spatial patterns. The variations between provinces are largely attributed to the uneven development across the "economy-society-environment-population-education" spectrum. Yet, with the continuous growth of the coupling and coordinated development trend across provinces over the span of ten years, regional spatial disparities are exhibiting a slow reduction. This is a positive sign, indicating that policy interventions and regional development strategies are having some effect.

Thirdly, the key influencing factors of the coordinated development of higher vocational education and digital economy have evolved with the coupling and coordinated development of the two systems and regional disparities, shifting from "teaching and research investment", "research and development investment", and "digital infrastructure" to "training services", "education quality", and "industrial digitization". This is a finding that has not been widely explored in previous research. This transformation highlights the evolving nature of the relationship between higher vocational education and the digital economy. With the continuous improvement and popularization of digital infrastructure, the focus of the digital economy has shifted to utilizing this

infrastructure to promote the digital transformation of industries and enterprises. This has put forward new requirements for talent cultivation in higher vocational education, requiring the cultivation of versatile individuals with digital skills, the ability to engage in industrial practice, and the ability to continuously learn and improve skills. It requires higher vocational education to improve the quality of education for first-time employees, increase opportunities for continuing education and skill enhancement for professionals, and further promote the coordinated development of coupling with the digital economy.

2. Policy recommendation

Due to the relatively stable coupling coordination degree in time and significant spatial differences, targeted and diversified strategies must be carefully considered to improve the coupling coordination between the two systems and alleviate regional differences. The specific measures are as follows.

For the regions where coupling coordination degrees have been in relatively less satisfactory coordination stages (such as Tibet, whose coupling coordination degree is the lowest), they should discover their specific advantages and capitalize on external opportunities and favorable policies to attain differentiated coordinated development. (1) Efficiently utilize national policies for digital economy development, align with the region's resource endowments and cultural uniqueness and synergize with other advanced digital economy regions to attract technological and capital inflows, robustly develop distinctive digital industries, advance digital infrastructure construction, and elevate the region's digital economic development level. (2) Based on the regional features of digital economy growth, motivate local higher vocational institutions to hasten the digital transformation of higher vocational education, create specialized educational programs for local digital economy enterprises, and establish exchange and internship schemes with regions that excel in higher vocational education and the digital economy to stimulate intentional growth in both sectors.

For regions exhibiting stable averages in coupling coordination degree (such as Hubei, and Hunan), it is necessary to overcome substantial hurdles and further improve the coupling coordination degree of higher vocational education and digital economy. (1) By encouraging the combination of traditional industries with digital technology to advance industrial upgrading; further perfecting the construction of digital infrastructure including networks and digital hubs; elevating the government's capacity for digital governance and optimizing the business environment for the digital economy, thereby accelerating the swift development of the regional digital economy. (2) Aligning with the digital transformation and upgrading requirements of the region's manufacturing sector, it is crucial to optimize the digital economy-related majors and disciplines within local higher vocational institutions, while also leveraging the region's digital infrastructure to create an educational resource-sharing platform that enhances the efficiency of educational resource utilization and promotes the growth and quality of digital economy-related students.

For regions with high average coupling coordination like Guangdong, Zhejiang, and Jiangsu, a comprehensive strategy must be implemented to strengthen the synergistic advantages between higher vocational education and the digital economy. (1) Utilizing big data and artificial intelligence technology

to support data-driven decision-making for governments and enterprises, improving the digital economy innovation ecosystem, continuously promoting the healthy development of the digital economy, while strengthening collaborative development with other regions, highlighting the exemplary role of the eastern region in the field of digital economy. (2) Utilizing the abundant presence of well-known vocational colleges and digital economy enterprises, promoting the integration of industry and education, motivating enterprises to participate in vocational education curriculum development and talent cultivation, providing professional training for employees in the digital economy industry to improve their work performance and market competitiveness.

VI. Conclusion

This study first explores the current development status and spatiotemporal coupling coordination relationship between higher vocational education and digital economy in 31 provinces of China from 2013 to 2022, and analyzes the factors that affect the degree of coupling coordination through a grey relational model. Based on the research results, we can make some suggestions.

First, the characteristic of coupling coordination degree between higher vocational education and digital economy in China is “high coupling with low coordination”. Specifically, from 2013 to 2022, the average coupling degree increased from 0.971 to 0.988, but the coordination degree is relatively low (from 0.1897 to 0.3155), indicating that there is a strong connection but low match between higher vocational education and the digital economy.

Second, there is significant spatial differences, charactered by “eastern > central > western” in the coupling coordination degree between higher vocational education and digital economy. The reason for this spatial hierarchy is uneven development of higher vocational education and the digital economy across different regions. Provinces like Guangdong, Jiangsu, and Zhejiang in the eastern region has the rapid development of digital economy and the large scale of investment in vocational education, while provinces in the western and northeastern regions, such as Ningxia, Qinghai, Jilin, and Heilongjiang, experiencing uneven economic development and low investment in vocational education.

Third, the driver factors of the coupling coordination degree have changed from “instructional research investment”, “R&D investment”, and “digital infrastructure” to “training Services”, “education quality”, and “industry digitization”, reflecting that the talent cultivation of higher vocational education should adapt to the development and changes demand of the digital economy.

VII. Limitations and future research

In the context of rapid development of digital economy, coupling and coordination between higher

vocational education and digital economy becomes increasingly important for all countries or regions. This research used provincial level data in China to explore the coupling and coordination dynamics, and the policy recommendations are suitable for China's current development in digital economy and higher vocational education. And the findings can serve as a theoretical reference for other countries or regions. Nonetheless, due to the different policy environment and development of digital economy and higher vocational education in different countries and regions, the finding of this paper can't be direct applicated. Thus, it is necessary to tailor strategic planning based on the specific development stage and policy background of local higher vocational education and digital economy. In the future studies, we may introduce data from other countries or regions to explore more target policy recommendations.

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Journal of Advanced Academic Research and Studies 高等学术研究期刊
Vol. 3, No.10, 2026 (pp. 36-50)
http://www.nlbaeai.org/
ISSN 3006-4007 (Print)
ISSN 3006-4015 (Online)

Goal–Content–Evaluation Alignment in Chinese Language Curriculum Standards: Comparing China (2022) and Malaysian Chinese Independent High Schools (2016)

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Received 15 July 2026, Revised 26 September 2026, Accepted 09 October 2026

Abstract

Purpose – This study compares China's Compulsory Education Curriculum Standards for Chinese Language (2022 Edition) and the Chinese Language Curriculum Standards for Malaysian Chinese Independent High Schools (2016), asking how curriculum goals, content, and evaluation are connected within the two policy texts rather than merely whether similar components are present.

Design/Methodology/Approach – Using qualitative document analysis, each standard was first examined independently and then compared through functionally equivalent textual units. Drawing on constructive alignment, the study analyzes goal–content, goal–evaluation, and content–evaluation relationships. Relation-specific decision rules classify textual linkage as Explicit (E), Indirect (I), or Unobserved within scope (U), with representative textual evidence retained for each judgment.

Findings – Both standards extend Chinese language education beyond basic language skills and show explicit goal–content and goal–evaluation alignment. Their clearest divergence lies in content–evaluation alignment. China's standard provides traceable links among content requirements, performance expectations, and evaluation through learning task clusters, Academic Quality Standards, and evaluation guidance. The Malaysian standard states that assessment should respond to curriculum content but does not map assessment provisions back to specific grade-level content requirements; this relationship is therefore classified as Indirect.

Research Implications – The findings show that cross-system curriculum comparison gains explanatory precision by examining relationships among curriculum components, not only their presence.

Keywords: Chinese language curriculum;curriculum standards; China–Malaysia comparison; curriculum evaluation

JEL Classifications: I21, I28, Z13

Financial source: This study was supported by the Regular Research Project of the Shaanxi Provincial Sports Bureau: "Research on the Development and Practice of School-Based Curriculum Integrating Shaanxi Red Sports Resources into Middle School Physical Education—Transformation of Guanzhong Red Sports Resources Based on Local Chronicles and Middle School Physical Education School-Based Curriculum Construction" (20261779).

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I. Introduction

Chinese language education at the lower-secondary level is organized within markedly different institutional settings in China and Malaysia. In mainland China, the Compulsory Education Curriculum Standards for Chinese Language (2022 Edition) is a national curriculum document for compulsory education and organizes learning around core competencies, learning task clusters, stage requirements, Academic Quality Standards, and evaluation guidance. In Malaysian Chinese Independent High Schools (MICSS), the Chinese Language Curriculum Standards (2016) positions Chinese as a mother-tongue education curriculum and organizes learning through curriculum aims, six ability categories, and grade-specific requirements. Because the two standards differ in institutional positioning and document structure, a meaningful comparison requires more than matching headings or listing similar curriculum terms.

A broader issue in curriculum research concerns coherence and alignment: whether curriculum goals, content expectations, and assessment requirements form interpretable relationships rather than remaining isolated statements. Work on curriculum coherence has emphasized the importance of systematic connections among curriculum elements (Schmidt, Wang and McKnight, 2005), while alignment research has developed procedures for examining relationships among standards, instructional content, and assessments (Porter, 2002; Webb, 2007). These traditions show that the presence of similar components does not by itself demonstrate how those components work together. For cross-system policy comparison, the question is therefore not only what a curriculum contains, but also how major requirements are positioned and linked within the normative text.

Existing scholarship provides a foundation for the present comparison. Research on China's 2022 Chinese language standard has highlighted its competency orientation, cultural dimension, learning task clusters, and reorganization of curriculum requirements (Rong, Tang and Tang, 2022). Comparative research has also examined twenty-first-century competencies across mother-tongue curriculum standards in different national systems (Deng et al., 2023). In the Malaysian context, the historical development of Chinese education has been closely connected with language policy, nation building, mother-tongue education, and community educational development (Sua, 2013). Most directly, Lim and Ng (2023) compared lower-secondary Chinese language curricula in China and Malaysia and identified differences in educational philosophy, structure, and curriculum organization.

These studies clarify important similarities and differences in curriculum aims, competencies, content, and educational context. Less attention, however, has been given to the relationships among these elements within the curriculum-standard documents themselves. A comparison may establish that both standards address thinking, culture, literacy, or diversified assessment, yet still leave unanswered whether curriculum goals are carried into content requirements, whether evaluation is explicitly anchored to those goals, and whether assessment provisions can be traced back to the content that students are expected to learn. This relational gap is especially important when the documents use different organizational units, because similar functions may appear under different headings or at different textual levels.

To address this problem, the study draws on the relational logic of Biggs' (1996) constructive alignment

framework. Constructive alignment was developed for instructional design, where intended learning outcomes, teaching and learning activities, and assessment tasks are expected to support one another. The present study does not transfer that framework mechanically to national curriculum policy. Instead, it uses alignment as a text-level analytical lens for examining three relationships within intended curriculum documents: goal–content, goal–evaluation, and content–evaluation. The analysis concerns the visibility and traceability of these relationships in the text; it does not measure classroom quality, curriculum effectiveness, or student outcomes.

Accordingly, the study addresses two research questions:

RQ1. What commonalities and differences exist between the Fourth Learning Stage of China's 2022 Chinese language curriculum standard and the junior-middle-stage MICSS Chinese language standard in curriculum goals, content organization, progression, and evaluation requirements?

RQ2. How are goal–content, goal–evaluation, and content–evaluation relationships represented in the two standards, particularly in terms of explicit, indirect, or unobserved textual linkage?

The study contributes in two ways. Substantively, it identifies the point at which two broadly convergent curriculum systems diverge most clearly: the textual relationship between curriculum content and evaluation. Methodologically, it combines functional-equivalence comparison with relation-specific alignment criteria so that differently organized policy texts can be compared without using one system's headings as the benchmark for the other. The analysis therefore treats textual explicitness as a characteristic of policy architecture, not as a ranking of curriculum quality.

II. Materials and Methods

1. Documents and Analytical Scope

The study examines two authoritative curriculum-standard documents for Chinese language education at the lower-secondary level: China's Compulsory Education Curriculum Standards for Chinese Language (2022 Edition), issued by the Ministry of Education of the People's Republic of China, and the Chinese Language Curriculum Standards for Malaysian Chinese Independent High Schools (2016), formulated by the Unified Curriculum Committee of Dong Zong. Document analysis is appropriate because the research questions concern the intended curriculum and the relationships expressed within official curriculum texts rather than classroom implementation (Bowen, 2009).

For China, the analysis focuses on the Fourth Learning Stage (Grades 7–9). The examined material includes the four core competencies, stage-specific learning requirements, curriculum content organized through learning task clusters, Academic Quality Standards, and evaluation and examination guidance in the curriculum implementation section. For MICSS, the analysis focuses on Junior Middle 1–3 and includes the preface, curriculum aims, six category-specific objectives, grade-level content requirements, teaching recommendations, and assessment recommendations.

The unit of analysis was a complete textual unit—such as a clause, bullet point, numbered requirement, or paragraph—that retained the qualifications necessary to interpret its curriculum function. Sections were not treated as equivalent merely because they used similar headings. Instead, comparison was based on the function performed by the relevant textual units.

Table 1. Analytical Scope of the Two Curriculum Standards

Analytical component	China: Fourth Learning Stage (Grades 7–9)	MICSS: Junior Middle 1–3
Curriculum positioning	National compulsory-education curriculum standard	Chinese mother-tongue education curriculum for Chinese Independent High Schools
Curriculum goals	Four core competencies and stage-specific learning requirements	Curriculum aims, general objectives, and six category-specific objectives
Content organization	Themes, cultural carriers, language-practice activities, and learning task clusters	Grade-specific requirements organized by six ability categories
Progression	Integrated Fourth Learning Stage covering Grades 7–9	Year-by-year requirements for Junior Middle 1, 2, and 3
Performance expectations	Academic Quality Standards	Goal-oriented learning and assessment requirements
Evaluation	Process evaluation, summative evaluation, and examination guidance	Diagnostic, formative, summative, diversified, and comprehensive assessment recommendations

Note. The comparison concerns functionally comparable curriculum elements rather than identical section titles.

The study is limited to the intended curriculum represented in the two standards. It does not evaluate textbook implementation, teacher guides, external examinations, classroom teaching, or the actual effectiveness of either curriculum system.

2. Analytical Framework

The analysis combines qualitative document analysis with comparative curriculum analysis. Three dimensions were first identified within each document: curriculum goals, content and organization, and evaluation requirements. Curriculum goals refer to statements describing the knowledge, abilities, dispositions, cultural understanding, values, and other outcomes students are expected to develop. Content and organization

refer to the learning requirements and structural arrangements through which those goals are translated into curriculum content, including progression, themes, cultural carriers, learning activities, and organizational scaffolds. Evaluation requirements refer to provisions concerning assessment purposes, benchmarks, participants, task formats, and expected performance.

Biggs' (1996) constructive alignment provides the relational logic for connecting these dimensions, while curriculum-alignment research provides an important methodological caution: alignment judgments require explicit criteria because apparent similarity may conceal different levels of correspondence (Porter, 2002; Webb, 2007). In this study, the framework is therefore adapted to three text-level relationships: (1) goal–content, (2) goal–evaluation, and (3) content–evaluation. These relationships are descriptive properties of the curriculum-standard text, not measures of instructional quality.

3. Analytical Procedure

3.1. Within-Case Analysis

Each curriculum standard was first examined independently. Relevant textual units were identified and organized according to curriculum goals, content and organization, and evaluation. This within-case stage was completed before cross-case comparison so that the terminology and structure of one curriculum standard would not be imposed on the other.

3.2. Functional-Equivalence Mapping

Functionally comparable textual elements were then mapped across the two standards. Functional equivalence was determined by what a textual unit did within the document rather than by its heading or location. Statements specifying what students should achieve were treated as goal-related elements, while provisions describing learning expectations or the organization of learning were treated as content-related elements. Provisions specifying assessment purposes, evidence, performance expectations, or examination requirements were treated as evaluation-related elements even when they appeared under different section titles.

3.3. Internal Alignment Classification

After functional mapping, the three relationships were examined separately. Each relationship was classified as Explicit (E), Indirect (I), or Unobserved within Current Scope (U). The categories refer to the visibility and traceability of textual linkage and are not ordinal scores of curriculum quality.

Table 2. General Operational Criteria for Internal Alignment

Classification	Operational definition	Decision rule
Explicit (E)	A direct and identifiable textual or structural relationship exists between the two curriculum elements examined.	The source element is explicitly named as a basis for the target element, or the document structurally maps the two elements in a traceable way.
Indirect (I)	A conceptual or functional relationship is identifiable, but the connection is not traceable at the level required for that relationship.	The elements are related in purpose or function, but the connection must be inferred from broader wording, parallel structure, or general guidance.
Unobserved within Current Scope (U)	No sufficiently identifiable relationship is found within the sections included in the analysis.	Neither direct textual/structural evidence nor a sufficiently clear functional connection can be established from the examined text.

Note. E, I, and U describe textual linkage within the curriculum-standard documents. They do not rate curriculum quality, implementation fidelity, or student outcomes.

4. Relation-Specific Decision Protocol and Evidence Trail

A relation-specific decision protocol was used to avoid applying a single vague definition of "alignment" to three structurally different relationships. For goal–content alignment, an Explicit classification required goals to organize, name, or be carried forward into identifiable content domains or requirements. For goal–evaluation alignment, Explicit required evaluation to state curriculum goals or core competencies as an assessment basis or benchmark. For content–evaluation alignment, the threshold was more specific: Explicit required evaluation or performance expectations to be traceable to identifiable content requirements; a general statement that assessment should vary with curriculum content was treated as Indirect unless the document supplied a mapping or integrated performance description. This distinction prevents a general reference to "content" from being treated as equivalent to a content-to-assessment crosswalk.

Representative textual bases were retained for every final classification. Table 3 provides the audit trail for the six relationship judgments. The table deliberately reports the textual basis and the reason for classification rather than converting interpretive judgments into numerical scores. Because the study makes no claim about the frequency or prevalence of categories, textual units are not used as quantitative counts.

Table 3. Representative Evidence and Coding Rationale for Internal Alignment

Relationship	China 2022: textual basis and rationale	MICSS 2016: textual basis and rationale	Classification
Goal–Content	Core competencies are carried through stage requirements and learning task clusters; the content structure is therefore traceable to the overarching competency framework (Ministry of Education of the PRC, 2022, pp. 14–19).	The six goal domains are reproduced as the organizing categories for grade-level content requirements, providing a direct structural pathway from objectives to content (Unified Curriculum Committee of Dong Zong, 2016, pp. 1–5).	China: E MICSS: E
Goal–Evaluation	Academic Quality Standards and evaluation guidance connect expected performance and evaluation with the development of core competencies (Ministry of Education of the PRC, 2022, pp. 37, 46–47).	The assessment section explicitly states that evaluation should be based on attainment of the junior-middle Chinese curriculum goals (Unified Curriculum Committee of Dong Zong, 2016, p. 7).	China: E MICSS: E
Content–Evaluation	Academic Quality Standards and examination guidance create traceable links among stage learning requirements, curriculum content, expected performance, and assessment (Ministry of Education of the PRC, 2022, pp. 37, 46–47).	The standard states that assessment methods may vary according to curriculum content, but it does not map assessment methods or performance expectations back to particular grade-level content requirements (Unified Curriculum Committee of Dong Zong, 2016, p. 7).	China: E MICSS: I

5. Analytical Rigor and Boundary Control

Interpretation was based on complete textual context rather than isolated keywords. Similar terms were not automatically treated as functionally equivalent, and ambiguous cases were checked against the relation-specific decision rules in Section 2.4. Where the document indicated a relationship in general terms but did not provide the level of traceability required by the relevant decision rule, the classification remained Indirect rather than being upgraded to Explicit.

The analysis also separates textual explicitness from curriculum quality. An Indirect relationship indicates that a direct mapping is not provided within the examined standard; it does not demonstrate that the relationship is absent from textbooks, teacher guidance, external examinations, or school practice. Socio-historical and institutional literature is therefore used only to contextualize the textual differences identified in the comparison, not as direct evidence that particular institutional conditions caused specific curriculum provisions.

III. Comparative Findings: Goals and Content Organization

1. Overall Configuration

The two standards cover substantially overlapping educational domains but organize them through different curriculum architectures. Table 4 summarizes the main structural pattern. The central contrast is not simply a difference in labels. China distributes curriculum purposes through a competency-centred hierarchy, whereas MICSS uses a more differentiated ability-category structure with explicit year-by-year requirements.

Table 4. Comparative Configuration of the Two Curriculum Standards

Comparative dimension	China: Fourth Learning Stage	MICSS: Junior Middle 1–3	Comparative finding
Curriculum goals	Four core competencies: cultural confidence, language use, thinking capacity, and aesthetic creation	Curriculum aims plus six ability categories: listening/speaking, reading, writing, thinking, literature/culture, and language knowledge	Broad educational convergence, but different goal architectures
Content organization	Themes, cultural carriers, language-practice activities, and learning task clusters	Grade level × ability category	Different primary units for organizing content
Progression	Integrated stage-level requirements across Grades 7–9	Separate requirements for Junior Middle 1, 2, and 3	China makes stage integration more visible; MICSS makes annual progression more visible
Performance/ evaluation interface	Academic Quality Standards connect curriculum requirements with expected performance	Assessment principles are stated mainly through overall goals and general assessment guidance	Both connect evaluation to curriculum aims, but the specificity of content–evaluation linkage differs

2. Functional Convergence in Educational Goals

At the level of educational scope, the two standards show considerable functional convergence. Both extend Chinese language education beyond mechanical literacy or isolated language knowledge to include language practice, thinking development, literary and aesthetic learning, cultural understanding, values, and broader personal development. In China's Fourth Learning Stage, Character Recognition and Writing, Reading and Appreciation, Expression and Communication, and Systematization and Inquiry operate within the broader framework of cultural confidence, language use, thinking capacity, and aesthetic creation (Ministry of Education of the PRC, 2022, pp. 14–17).

MICSS identifies six ability domains—listening and speaking, reading, writing, thinking, literature and culture, and fundamental language knowledge—and connects Chinese language education with cultural continuity, social responsibility, aesthetic development, information use, and respect for cultural diversity (Unified Curriculum Committee of Dong Zong, 2016, pp. 1–2). The comparative result is therefore functional convergence with categorical difference: similar educational purposes are classified and positioned differently within the two standards.

3. Different Pathways from Goals to Content

The stronger difference concerns how high-level goals are translated into content. In the Chinese standard, core competencies operate as an overarching framework and are repeatedly developed through stage requirements, learning task clusters, and later Academic Quality Standards. Goals are therefore distributed across several levels of the document and remain visible as organizing reference points for subsequent provisions.

In MICSS, broader educational and socio-cultural purposes are concentrated in the preface and curriculum aims, after which requirements are organized through six ability categories. Importantly, those same categories structure the grade-specific content for Junior Middle 1, 2, and 3. This produces a direct and easy-to-follow goal–content pathway, but one based on category continuity rather than a competency hierarchy.

The two standards also differ in progression and content granularity. China presents Grades 7–9 as an integrated Fourth Learning Stage and uses learning task clusters to organize content around language practice, themes, cultural carriers, and communicative or inquiry contexts (Ministry of Education of the PRC, 2022, pp. 18–19). MICSS specifies separate year-by-year requirements under each ability category, making annual progression more visible. These different content structures become especially important when the analysis turns to evaluation, because they create different opportunities for assessment requirements to be linked back to the content to be taught.

IV. Evaluation Requirements and Internal Alignment

1. Similar Assessment Functions, Different Textual Anchors

Both standards treat evaluation as more than a final examination and recognize multiple purposes and forms of evidence. The Chinese standard combines Academic Quality Standards with process and summative evaluation. Suggested evidence includes classroom observation, dialogue, presentations, learning portfolios, and examination tasks, while examination design is linked with curriculum requirements and task contexts (Ministry of Education of the PRC, 2022, pp. 37, 46–47).

MICSS similarly presents assessment as a means of identifying learning progress, providing feedback, and improving teaching. Its assessment recommendations include written examinations, oral assessment, reports, design or production tasks, performance, and interviews (Unified Curriculum Committee of Dong Zong, 2016, p. 7). The difference is therefore not between diversified and non-diversified assessment. The more consequential issue is the textual anchor of evaluation: whether assessment is linked primarily to overarching goals or can also be traced to specific content requirements.

2. Internal Alignment Results

Table 5 summarizes the three internal-alignment relationships. Two relationships converge across the standards, while the third produces the clearest divergence.

Table 5. Internal Alignment of Goals, Content, and Evaluation

Alignment relationship	China 2022	MICSS 2016	Comparative finding
Goal–Content	Explicit (E)	Explicit (E)	Both standards provide identifiable pathways from goals to content, although through different organizational mechanisms.
Goal–Evaluation	Explicit (E)	Explicit (E)	Both standards explicitly make curriculum goals or competencies a basis for evaluation.
Content–Evaluation	Explicit (E)	Indirect (I)	China provides traceable links between content requirements, performance expectations, and evaluation; MICSS provides a general content-related principle without a grade-level content-to-assessment mapping.

2.1. Goal–Content Alignment

Goal–content alignment is Explicit (E) in both standards. In China, core competencies are developed through stage requirements and learning task clusters, creating an identifiable pathway from overarching goals to curriculum content. In MICSS, the six ability categories established in the objectives also organize the grade-specific content requirements. The shared finding is therefore explicit goal–content alignment achieved through different mechanisms: competency distribution in China and category continuity in MICSS.

2.2. Goal–Evaluation Alignment

Goal–evaluation alignment is also Explicit (E) in both standards. In China, Academic Quality Standards and evaluation guidance connect student performance and evaluation with the development of core competencies. MICSS is especially clear at the level of declared assessment purpose: its assessment section states that evaluation should be based on the attainment of junior-middle Chinese curriculum goals (Unified Curriculum Committee of Dong Zong, 2016, p. 7). Both standards therefore make curriculum purposes an explicit reference point for evaluation, even though they operationalize that reference differently.

2.3. Content–Evaluation Alignment

Content–evaluation alignment produces the clearest difference. In China, Academic Quality Standards and evaluation guidance create identifiable links among stage learning requirements, curriculum content, expected performance, and assessment. Under the relation-specific criteria used in this study, these integrated links constitute Explicit (E) content–evaluation alignment.

MICSS is not silent about the relationship between content and assessment. Its assessment guidance states that different assessment methods may be adopted according to differences in curriculum content and student development (Unified Curriculum Committee of Dong Zong, 2016, p. 7). However, the document does not specify which assessment modes, performance expectations, or criteria correspond to particular grade-level content requirements in listening and speaking, reading, writing, thinking, literature and culture, or language knowledge. The relationship is therefore visible in principle but not traceable at the content-requirement level. It is classified as Indirect (I), not Unobserved (U).

This distinction is central to the study. The E/I difference does not claim that MICSS lacks content-sensitive assessment in practice. It describes a difference in policy-text architecture: China embeds content, performance, and evaluation within a more directly connected textual chain, whereas MICSS states the principle of content-responsive assessment without providing the same degree of internal mapping in the 2016 standard.

V. Discussion

1. From Component Similarity to Relational Difference

The comparison shows why a component-by-component approach can understate meaningful differences between curriculum systems. At the level of stated purposes, both standards address language practice, thinking, literature and aesthetics, culture, values, and broader student development. Both also endorse diversified assessment and connect evaluation with curriculum goals. If the comparison stopped at the presence or absence of these elements, the two standards would appear more similar than they do when their internal relationships are examined.

The relational analysis reveals that comparable curriculum functions are embedded in different organizational pathways. China uses a competency-centred hierarchy that is carried through stage requirements, task clusters, Academic Quality Standards, and evaluation guidance. MICSS uses a goal-and-category architecture in which six ability categories structure annual content requirements and provide a clear instructional progression. This finding is consistent with the broader curriculum-coherence literature: coherence depends not only on whether important elements exist, but also on whether users can see how those elements connect across the curriculum system (Schmidt et al., 2005).

2. Content–Evaluation Visibility as the Main Point of Divergence

The most consequential finding is the difference in content–evaluation visibility. Existing alignment research often examines whether assessments match standards in content and cognitive demand (Porter, 2002; Webb, 2007). The present study asks a prior policy-text question: before an external examination or classroom assessment is analyzed, how explicitly does the curriculum standard itself connect what is to be learned with how learning is to be evaluated?

China's 2022 standard provides a relatively direct textual route from content requirements to expected performance and evaluation through Academic Quality Standards and examination guidance. MICSS provides a different configuration. It explicitly anchors evaluation to curriculum goals and acknowledges that assessment methods should respond to curriculum content, but it does not supply a comparable grade-level content-to-assessment mapping. The distinction is therefore not "assessment versus no assessment," nor "diverse versus narrow assessment." It is a distinction in the degree to which content–evaluation relationships are made operationally visible within the standard.

This finding should not be interpreted as evidence that one curriculum is more rigorous or effective. Textual explicitness may support consistency and traceability for curriculum users, but a more open policy text may also leave implementation details to textbooks, examination syllabi, school-level guidance, or teacher professional judgment. Determining whether either architecture produces stronger classroom alignment requires evidence beyond curriculum standards.

3. Contextual Interpretation

The institutional settings of the two standards provide useful context for understanding their textual organization, although the present study does not establish causal relationships between institutional conditions and specific provisions. China's 2022 standard is a national compulsory-education policy document. Its role within a unified curriculum framework provides a plausible context for the relatively explicit articulation among competencies, learning requirements, Academic Quality Standards, and evaluation guidance. The textual analysis itself, however, establishes only that these connections are more directly represented in the document.

MICSS operates within the historically distinctive system of Malaysian Chinese Independent High Schools. Research on Chinese education in Malaysia has emphasized the long relationship among language policy, nation building, mother-tongue education, community educational development, and cultural continuity (Sua, 2013). This context helps explain why mother-tongue education, cultural inheritance, multilingual social responsibility, and broad educational purposes are prominent in the MICSS curriculum aims. It does not, however, prove why the assessment section was written at a particular level of specificity. Such causal explanations would require historical drafting records, interviews with curriculum developers, or implementation evidence.

4. Methodological Contribution

Methodologically, the study extends comparative curriculum analysis in two modest but useful ways. First, functional equivalence allows differently structured documents to be compared according to the role a curriculum element performs rather than its heading. This is important in cross-system research because an objective, content requirement, or performance expectation may occupy different textual locations in different systems. Second, the relation-specific decision protocol distinguishes a general statement of relationship from a traceable mapping. This makes the E/I/U categories more transparent and reduces the risk of treating any thematic similarity as evidence of explicit alignment.

The framework is deliberately conservative. It does not calculate a universal alignment score, and it does not assume that greater textual explicitness is always preferable. Instead, it identifies where relationships are made visible, where they remain general, and where no relationship can be observed within the selected document scope. In this sense, it complements more quantitative alignment approaches (Porter, 2002; Webb, 2007) by addressing the architecture of normative curriculum texts before enacted curriculum or assessment items are introduced.

5. Limitations and Future Research

The study has four limitations. First, it is limited to two lower-secondary curriculum-standard documents. Textbook series, teacher guides, examination syllabi, and school-level assessment documents are outside the present scope. The Indirect content–evaluation relationship identified in MICSS may therefore become more

explicit when implementation documents are included.

Second, the study examines intended curriculum rather than enacted curriculum. Classroom observations, teacher interviews, student work, and school assessment materials would be required to determine how the relationships identified in policy texts are interpreted and implemented in practice.

Third, E/I/U classification remains an interpretive judgment, even with relation-specific criteria and an evidence trail. Independent replication, additional coders, or inter-rater checks would provide a useful test of the transferability of the classifications in future studies. The present study therefore treats the categories as transparent analytical descriptions rather than psychometric measures.

Fourth, the study is cross-sectional and compares the 2022 Chinese standard with the 2016 MICSS standard. Future research could examine subsequent revisions and trace whether goal–content–evaluation relationships become more or less explicit over time. Extending the same framework to textbooks and examination documents would also make it possible to test whether policy-level alignment is reproduced, modified, or compensated for during curriculum implementation.

VI. Conclusion

This study compared China's 2022 Chinese language curriculum standard and the 2016 MICSS Chinese language curriculum standard by examining both their major curriculum components and the relationships among goals, content, and evaluation. The two standards show substantial functional convergence in educational aims but organize those aims through different textual architectures: China uses a competency-centred, stage-level structure, while MICSS uses a grade-level × ability-category structure.

The internal-alignment analysis identifies a more precise pattern than a general statement of similarity or difference. Goal–content alignment is Explicit in both standards, and goal–evaluation alignment is also Explicit in both. Their clearest divergence lies in content–evaluation alignment. China provides traceable links among content requirements, performance expectations, and evaluation, whereas MICSS states a general principle that assessment should respond to curriculum content without mapping evaluation back to specific grade-level content requirements. Within the analytical scope of this study, the relationship is therefore Explicit in China and Indirect in MICSS.

The broader implication is methodological as well as substantive. Comparative curriculum research can gain explanatory precision by asking not only which goals, skills, content categories, or assessment forms are present, but also how those elements are connected within normative curriculum documents. Such analysis should remain cautious: textual alignment describes the visibility of policy relationships, not the effectiveness of curriculum implementation. Used in this way, functional equivalence and relation-specific alignment provide a practical framework for comparing curriculum standards that differ in terminology, institutional setting, and document structure.

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Journal of Advanced Academic Research and Studies 高等学术研究期刊
Vol. 3, No.10, 2026 (pp. 51-61)
http://www.nlbaeai.org/

ISSN 3006-4007 (Print)
ISSN 3006-4015 (Online)

A Comparative Study of the Development of Combat Sports in China and the Philippines

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Received 15 July 2026, Revised 26 September 2026, Accepted 09 October 2026

Abstract

Purpose – This study examines how combat sport has developed in China and in the Philippines, compares the two national trajectories, and identifies the particular advantages of each so that the more commercial features of the Philippine model can be adapted to the Chinese martial arts movement..

Design/Methodology/Approach – Documentary and logical analysis of published sources establish the historical, institutional and cultural context of combat sport in both countries.

Findings – Chinese competitors depend on defensive contact, on the quick throw of sanda and on straight-leg kicking, and their attacks score less efficiently. Filipino competitors show greater endurance and tolerance of impact, tighter combination punching and a more aggressive, spectator-oriented style that treats blocking and sealing as defense and integrates punches, kicks, throws, elbows and knees.

Research Implications – Social organizations should lead the popularization of combat sport, supported by government departments. Promotion should be intensified, star athletes developed, funding and medical safety provision increased, and a market operation system completed so that the industry can be modernized and commercialized in accordance with international practice.

Keywords: combat sport; sanda; freestyle fighting; ONE Championship; sports commercialization; China–Philippines comparison

JEL Classifications: I2, O1,Z1

Foundation: Southern University of Science and Technology, School of Humanities and Social Sciences, Party Committee 'Polaris Program' Curriculum Ideological and Political Demonstration Course Achievement

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I. 引言

1.1 研究问题及研究背景

作为一项深度整合地域文化与民族特色的体育活动，搏击运动因其实质内涵的丰富性而呈现多元化发展特征，在全球范围内逐渐形成独具特色的跨文化交流载体。作为一种典型的对抗性竞技项目，其历史渊源可追溯至中国武术、泰国拳术（泰拳）、中国散打、日本空手道以及西方现代拳击等经典流派，并借助国际赛事平台实现跨国界的互动融合。近年来，随着多项国际化搏击比赛的举办，各参赛主体间的技战术交流与思想碰撞进一步推动了该项目的快速发展。在东亚地区，中国搏击更注重快速反应与策略布局；而在东南亚，则以强劲体能和激进打法为主导特点。基于这一背景，本研究选取中菲两国典型代表项目为案例，系统分析其发展历程与异同之处，旨在探索全球化语境下搏击运动可持续发展的有效途径，并提出若干建议以促进该领域的健康发展。

1.2 研究意义

在全球经济快速发展的背景下，公众对生活品质的追求已从物质层面延伸至精神文化领域。随着竞技体育及其内在文化价值观念的普及深化，如何实现文化产业与体育产业的协同发展成为亟待解决的重要议题。作为国际范围内备受瞩目的体育项目之一，搏击运动凭借其独特的竞技魅力展现出显著的市场活力与发展潜能。系统探究中国与菲律宾两国搏击运动的发展模式及差异，并提出针对性建议，不仅能够促进相关市场需求的释放、优化行业结构，还可契合时代发展趋势。本研究选取中菲两国为典型案例进行对比分析，意在通过深入挖掘双方搏击运动的特征差异，为完善全球搏击产业链布局提供理论依据与实践参考，进而满足大众对高品质文化体育服务的需求升级。

1.3 文献综述

虽然搏击运动在世界范围内拥有广泛的社会认知度，但国际学界至今尚未对其核心概念达成统一共识。深入探讨该领域的发展脉络及其本质属性，不仅具备重要的理论价值，还对实践层面具有显著指导意义。朱建华在其专著《国际自由搏击精粹》中提出，现代搏击运动起源于 20 世纪 60 年代的北美地区，并逐步向全球扩散。作为一项新兴体育活动，其兴起与发展依托全球化文化交融与经济一体化的背景，在技术融合方面展现出多样化特征：既突破了宗教约束，又超越了传统格斗形式的局限，整合了包括中国武术（如散打）、泰拳、空手道、跆拳道以及日本柔道在内的多种东亚和东南亚武学精髓，形成了以实战对抗取胜为宗旨的技术体系。周嵩山等学者则从竞技性视角出发，将其定位为一种融合激烈竞争与体育精神的高度规范化对抗型运动。季电力等人进一步明确了其定义——即以自由原则为基础、涵盖全方位攻防范畴的高强度对抗模式，去除了固定套路与程式化动作限制，倡导参与者根据实际情况灵活运用多种技击手段（如拳法、腿法、膝击、肘击及摔跤技法），最终实现击败对手或确立绝对优势的目标。现有研究成果共同揭示，作为一种持续演化的复杂运动类型，搏击运动在其发展历程中不断拓展内涵并呈现多元化趋势。本文围绕搏击运动的起源、文化渊源及经济价值展开

探讨，并对其技术特点和发展轨迹进行系统剖析。作为一门以击败对手或使其倒地为主要目的的竞技体育项目，搏击运动依托人体多部位力量的综合运用实现攻防转换，其核心在于精确协调进攻与防守策略以获得最终胜利。在技法体系中，拳击、踢腿、擒抱、肘击、膝撞以及锁喉和压腹等多元化动作形式已得到充分整理与归纳。尽管当前对搏击运动内涵的认知仍处于初级阶段，但现有研究成果已然构建起较为完整的理论框架体系。现代搏击运动经过长期发展，已构建起较为完善的规则体系和技术框架。其中，散打作为融合拳击、腿法及防摔技术于一体的综合性运动项目；泰拳则通过整合拳术、肘击、膝部重击以及低段踢击等方式，同时结合内围控制技术，展现出独特的竞技特点；而综合格斗则汇集了踢腿、挥拳、地面缠斗以及颈部扼压等多样化战术手段，并对打击范围和方式进行了严格限制。上述各类对抗型搏击项目在技术应用层面呈现出明显的差异化特征。部分学者将此类运动统称为“综合搏击术”，其内涵主要指向当前主流的自由搏击形式，但对核心概念的理解仍存在分歧。根据学者贾思航的研究成果，《中国高水平商业自由搏击赛事开展现状与对策研究》一书中指出，搏击运动的本质在于参赛者需遵循特定赛事规程，在合法的技术规范下（如拳法、膝击、低段踢击等），通过对对手实施精确攻击并实现有效防护来展示个人技能水平、体能素质及心理承受能力，这是一项典型的对抗性体育竞赛形式（季电力等，2018；郭冬云，2001）。20 世纪 60 年代，搏击运动兴起于欧美地区，并以美国为核心迅速扩散至全球。由于传统拳脚技击难以满足实战需求与观众期待，美国选手借鉴拳击技术改进竞技表现，并在比赛中取得显著成效。其中，乔・路易斯作为首位获得重量级世界冠军的职业空手道运动员，在 1976 年的全接触空手道赛事中展现出了卓越的技术水平，对全球搏击运动的发展产生了深远影响。在中国，武术宗师李小龙对现代搏击文化的形成同样起到了重要作用。他主张搏击不应局限于固定套路或单一胜利模式，而应根据对手特征、攻击方式及实际情境进行灵活应对与战术调整，从而实现技术与策略的完美融合。这一理念激发了搏击运动的创新活力（李纪辉 & 郑贺，2016）。随着中国经济的快速发展和高端体育赛事的不断举办，中国已成为国际搏击产业的重要中心之一，进一步推动了该领域的国际化进程及其全球影响力的拓展。李纪辉在其学术研究《K–1 赛事运营模式对我国搏击运动发展的启示》中深入解析了 K–1 格斗赛的核心特征。作为全球范围内具有代表性的职业搏击赛事，K–1 凭借其国际化视野和专业化运作，汇聚了来自世界各地的顶尖运动员。该赛事通过制定相对宽松的技术规则（除因安全原因被明确禁止使用的动作如肘击与连续膝击外），实现了不同武术流派技法的兼容并蓄。这一创新性规则不仅促进了多元化技术体系在全球范围内的交流融合，还为各区域构建特色竞技项目提供了理论依据与实践经验参考（详见曹司雨，2012）。依托清晰的战略规划与高额奖金激励机制，K–1 成功吸引了众多世界级综合格斗明星参赛。尽管其初期发展主要聚焦于本土市场，但随着全球化进程加快，逐步拓展至欧洲、亚洲及其他新兴地区。针对目标市场的动态变化与消费趋势，主办方持续优化赛事结构，推出涵盖多种风格的专业化分层赛事活动，以此满足不同受众群体的需求差异（参阅代永胜 & 张琨，2021）。

1.4 理论框架

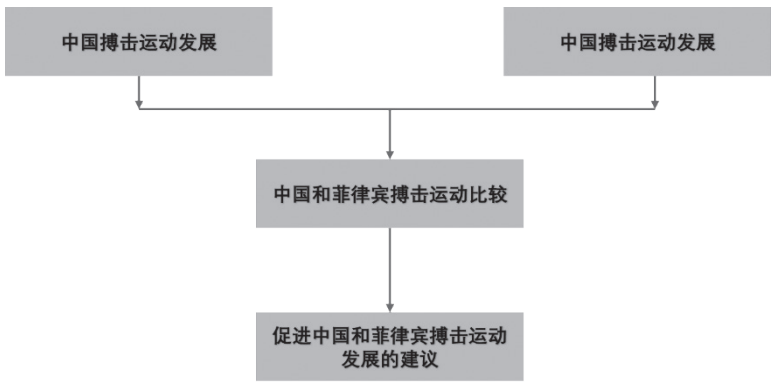


图 1. 中国与菲律宾搏击运动发展比较研究的理论框架

1.5 概念框架

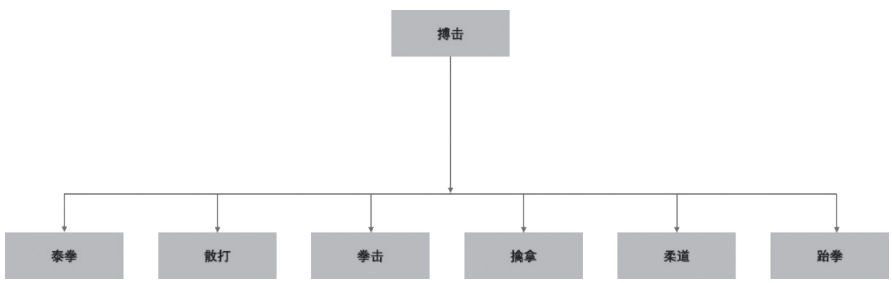


图 2. 中国与菲律宾搏击运动发展比较研究的概念框架

1.6 研究问题陈述

本文主要是对中国搏击运动和菲律宾搏击运动的发展进行简述，进而对两者之间的发展情况进行对比，从而找出能够促进中国和菲律宾搏击运动发展的相关策略和建议。

1.7 术语定义

搏击运动，又称为格斗，是人类原始本能的体现，是人类使用身体或器械与对手进行搏斗的技能。随着人类文明的发展，搏击运动由原来的作为进攻和防御的方法发展成为健身强体的手段。

1.8 研究范围和界定

研究范围为中国和菲律宾搏击运动对比。
界定：本次研究是对中国和菲律宾两国对于搏击运动的发展情况进行研究并进行对比。

II. 方法

2.1 研究设计

首先简述中国和菲律宾搏击运动发展的各自历史，然后对两国搏击运动的特点进行对比分析，从中找出各自的优点和不足，寻找能够有效融合两者的搏击运动新方式。

2.2 研究对象和抽样流程

本文以中国和菲律宾搏击运动发展对比作为研究对象。

2.3 研究工具

本文主要使用文献资料法和逻辑分析法作为研究工具。根据研究的需要，查阅了相关的文献资料作为本研究的理论依据，对得出的研究结果进行初步的逻辑和数据分析，结合分析结果得出改善建议，以期能够进一步的完善和发展中国和菲律宾搏击运动。

2.4 数据收集流程

本文以 2019 年 8 月 2 日举办的 ONE 冠军赛马尼拉站的羽量级比赛中中国选手谢彬战胜菲律宾选手爱德华—凯利进行分析。对比赛中两者在拳击、腿、摔跤肘、膝盖和步法的使用情况进行数据统计。

表 1：中方技术统计表

	中方动作总次数	击中率 %	击中次数	得分次数	得分率 %
拳	13	31	4	3	43
腿	12	42	4	2	29
摔	5	40	2	2	29

表 2：菲方技术统计表

	菲方动作总次数	击中率 %	击中次数	得分次数	得分率 %
拳	13	23	3	2	33
腿	14	21	3	3	43
摔	1	0	0	0	0
肘	3	33	1	1	17
膝	6	33	2	1	17

2.5 数据分析和统计处理

（1）拳法

从技术统计角度分析，中菲两国搏击运动员在拳法使用频次（13:13）、命中率对比（4:3）以及得分效率（3:2）方面展现出显著相似性。其技战术布局以直拳、摆拳和勾拳为主要框架，整体表现呈现出明显的平衡与协调特性，在竞技层面上存在较高的一致性。

（2）腿法

研究数据表明，两国拳击运动员在腿法应用频率与效果上存在明显差异。根据统计，双方踢击次数比为 12:14，但命中率却呈现 4:3 的差距；而在有效命中次数方面，这一比例进一步拉大至 2:3（蔡德洪，2019）。尽管中国选手出手频率高于对手，但其技术转化效率相对较低，得分动作占比仅达总命中数的 29%，远低于菲律宾选手的 43%。在技法构成方面，对比分析显示，中国选手以鞭腿为主（占比 3），而菲律宾选手则更倾向于使用踹腿（比例高达 11），这反映了两者战术理念的显著区别——前者偏向传统的线性直击模式，后者则突出利用侧向位移实现连续复合型攻击组合。

（3）摔跤

菲律宾搏击赛事中广泛采用接腿后勾踢技术，但在中国搏击运动的竞技规则体系下，快速近身摔倒已被明确列为违规行为。统计数据显示，在技术应用层面，菲律宾搏击明显存在摔法匮乏的特点。以散打项目为例，该领域共发生 5 次摔投实例，其中 2 例为有效得分；而菲律宾选手仅有一次被动摔倒尝试，并未能转化为实际得分收益。

（4）肘

在国内搏击赛事中，肘击技术已被明令禁止，而在国际赛事体系中则被纳入合法技战术范畴。尽管国内选手已经根据禁用规则进行了针对性训练，但在实际比赛中仍未选择使用这一攻击方式。菲律宾参赛者在对战过程中共计实施了 3 次肘击，其中仅有 1 次成功命中，攻防成功率约为 33%。

（5）膝盖

根据现行中国搏击竞赛规则，尽管膝法技术被纳入合法范畴，但明确规定禁止向对手头部施加冲击。在本次赛事的实际对抗中，中方与菲方选手在膝法运用上展现出明显差异：中方选手未选择使用此战术，

而菲方选手共执行六次膝法攻击，却因精准度欠缺，最终得分占比仅为总分值的 17%。

（6）步法

在竞技格斗领域，步法技术被公认为核心要件之一。受限于相关数据采集难以实现精确量化，此类技术的研究多依托经验性分析展开。中国搏击运动员通常采用多元化且具复杂性的步法组合战术，而菲律宾选手则更偏好运用简化版滑步，并借助持续性压力对对手施加影响。

2.6 伦理考量

中国搏击文化植根于儒家、道家及佛家哲学思想，其竞赛理念融合了“中庸之道”的精神内涵，倡导节制与平衡，并将健身和人格塑造作为核心目标。该文化体系摒弃暴力倾向，推崇仁爱精神与团队协作意识，同时注重社会化的育人功能和个人道德修养的提升（罗雅婷，2017）。相比之下，菲律宾搏击运动深受“天人合一”哲学思想的影响，更加强调自我挑战与极限突破的价值取向。其技术架构聚焦于个人胜利的关键要素，既重视规则的规范性作用，也鼓励挖掘个体潜力，在此基础上着重表现外在力量的独特魅力与个性化特质。两者呈现出鲜明的文化差异特征。

III. 研究成果、发现和讨论

3.1 研究成果

（1）中国搏击运动发展史

中国作为传统的武术大国，中国人民一直都对武术比较憧憬。早在 1978 年，中国武术按照技术打击和套路的不同分成 2 个部分，一部分是用来艺术表演的套路，一部分是真正的技术比赛。其中武术表演结合每年的武术大赛，训练并培养出了一大批优秀的武术表演人才，包括耳熟能详的李连杰和赵长军等明星艺人。另外的技术打击部分就逐渐演变成散打术，通过设立国家级和省市级培训中心，专门培训散打术，并且每年举办不同层级的散打比赛，将优秀的散打运动员筛选出来，然后陆续演变分化成自由搏击，将大批的优秀散打运动员输送至安保、培训等岗位。

自 1999 年开始，我国在武术、散打的基础上演化出的自由搏击开始职业化和商业化，2000 年由央视和中国武协开始组织举办的“散打王”节目，成为向国人进行知识普及的首个自由搏击萌芽的全国性节目；后在 2004 年，在武术、散打及自由搏击基础上发展起来的《武林风》节目则是将搏击运动风格和娱乐元素进行结合，并且不断发展创新，至今依然处于中国搏击运动的一线赛事。

2014 年，基于互联网传播理念的《昆仑决》开始举办，借助电视、互联网传播媒介，一方面节目务必求新求专业求高端，另一方面参赛队员均为来自世界各地的格斗类高手进行对决，仅在第一年就在全球各地举行了高达 17 次的巡回比赛，并创新性的采用 KO 奖励制度，使得比赛和节目深入人心，传播甚广。

2016 年，中国阿里体育主导举办了搏击赛事，参与者有 IBF 中国和乐视影业，该项赛事的覆盖面更广，对人们的观念影响更深。另同年，由中国拳击协会以及综合格斗协会签署的关于共同打造综合

类格斗运动员计划开始实施，格斗搏击赛事类活动的举行和传播，不仅调动了人们学习搏击技能的热情，也对人们善于竞争进行了意识理念的引导，还推动了对搏击运动员的培养。但是与国际搏击市场相比较，中国搏击运动的发展还是刚刚起步，存在着搏击体系还不完善、搏击赛事的规则还不统一、搏击运动培训机构水平良莠不齐、搏击赛事奖励制度还不明朗等诸多问题。

（2）菲律宾搏击运动发展史

菲律宾搏击运动起步较晚，且搏击运动起源于武术，距今只有不到 40 年的发展历程，1987 年，菲律宾武术联合会成立，发起者是菲律宾滑移弗朗西斯 – 陈，后该武术联合会的负责人朱力安—卡马乔在菲律宾不遗余力的推广来自中华的传统武术运动。加上在 20 世纪 90 年代风靡东南亚的功夫电影，菲律宾掀起一阵阵武术热潮，李小龙、成龙等功夫巨星成为人们心中的英雄，对于武术运动及英雄主义精神在菲律宾的生根发芽有着不可磨灭的影响，越来越多的菲律宾运动员选择练习武术（罗雅婷，2017; 毕金泽 and 林致诚， 2019）。

发起于 2011 年的 ONE 冠军赛在菲律宾举行赛事后，正式拉开了菲律宾搏击运动的序幕。为此，菲律宾出现了两支搏击队伍。一支是莱凯队伍，它的创始人是菲律宾武术教练马克，他认为散打术的基础是实战和训练，必须进行大量的重复实践方能获得灵活性，兵器该技术是对抗性的，而武术套路是技巧演练，没有直接的对抗，他将散打与地面缠斗技术相结合，建立了独特的战术体系，将散打高强度训练的优势完全发挥出来，将技术全面、快速灵巧、注重实效作为训练方向，在比赛中强调以快打慢、以巧取胜、动作组合多样。该战队先后出现了四位综合格斗世界冠军，“山崩”埃杜阿德—弗拉杨被拳击冠军曼尼 – 帕奎奥夸赞为“菲律宾综合格斗的传奇”，在 ONE 冠军赛中曾多次取得轻量级世界冠军，他最初因为家境贫寒，通过学习武术来参加比赛获得奖金，后来参加综合格斗比赛，擅长转身后摆腿、侧踹，经典战绩是用飞膝战胜 TKO“跳关十段”青木真也取得冠军。“激情”约书亚 – 帕西奥作为莱凯队伍中最年轻的现役冠军，不仅是连续两届草量级世界冠军获得者，在草量级别比赛中是没有争议的统治者，最初他擅长的是散打技术，后来又对地面技巧进行不断的完善。“地心引力”哥杰—艾乌斯塔奎奥则是细分门类轻量级的世界冠军，他的技术优势是踢拳术，后来深入学习散打术并进行了融合贯通，学毕业后从事教育事业，后面根据自己的喜好和天赋终于走向格斗的实战赛场。“沉默者”凯文—贝灵刚则是前雏量级世界，他的散打不仅实用而且动作炫酷，转身侧踹不仅快速而且准确，但是不是特别擅长地面缠斗，因此他苦练摔法和巴西柔术。

第二支队伍的名字是卡塔兰，这是由获得过散打术世界冠军“挑战者”的雷内—卡塔兰创建的，其发展风格是基于散打又高于散打的搏击类全能进攻术。

3.2 研究发现

一：中国搏击运动员以防御性接触为主，而菲律宾搏击运动员的耐力较好，抵抗能力较强，将格挡和封锁作为主要的防御手段。中国搏击运动员在比赛中中国搏击运动员大多采用等待攻击的形式。而菲律宾搏击运动员崇尚的是以进攻为主，对于预防的动作主要是格挡和封锁，身体的抵抗能力较强在比赛中能够做到较好的防御。

二：中国搏击中搂抱的情况出现的较多，比赛的观赏性不强，而菲律宾搏击的对抗性较强，具有较好的观赏性。在中国搏击中使用摔跤和绕摔将对方放倒能够得到更高的分数，使得中国搏击运动员

将战术主要用于防摔。中国搏击在比赛中严禁使用肘和膝盖，因此在比赛中进攻技术较少，部分选手在体力消耗较大后会出现使用消极搂抱来拖延比赛时间。菲律宾搏击运动员在比赛中的动作比较灵巧，将攻击作为最好的防守，比赛比较激烈、刺激。

三：中国搏击中组合拳之间宽松，各动作之间的运动节奏不够紧密，很容易造成动作被破坏无法进行下一步动作。而菲律宾搏击中组合拳比较紧凑连贯。

3.3 讨论

一：对于中国和菲律宾搏击运动发展对比研究，不仅可以促使中国搏击运动在借鉴和学习菲律宾搏击运动优秀组织能力和方法的前提下，找到自身发展的方向，促使中国搏击运动赛事的商业化和现代化。通过举办国际类赛事、行业类赛事以及综合类、主题类赛事，吸纳来自全世界的优秀运动员，同时积累丰富的搏击类赛事的组织经验，以及商业运营经验，引领中国各地区搏击运动朝着国际化发展，使得搏击赛事从组织、到运营，从选手选拔到训练，全部走向与国际接轨，而且能够通过比赛来促进改革，使得国内搏击行业走向良性发展的快车道。由于搏击运动的国际推广要求，搏击运动管理者需要丰富自身理论知识、业务技能，以及行业技术体系、标准的建设，对于搏击运动的理论和技术体系逐渐规范，标准逐渐统一。

二：对于中国和菲律宾搏击运动发展对比研究能够使得搏击运动朝着商业化、产业链化的方向发展。搏击运动具有全球推广和示范的特性，通过吸纳大量的运动员和业余运动人群，促进搏击运动产业链的完善，包括专业和业余赛事组织、培训、场地及训练辅助等，在侧面促进大众搏击运动的发展和繁荣，为社会的发展和经济的稳定奠定了基础。

三：对于中国和菲律宾搏击运动发展对比研究发现随着搏击运动在国际上的不断推广，搏击运动的知名度得到了不断增加，在世界上的影响力也越来越大，能够提高搏击运动在世界武坛上的地位，增强搏击运动在国际体坛上的影响力。

IV. 结论和建议

4.1 结论

目前，搏击运动在中国和菲律宾才刚刚起步，搏击运动赛事的正规化、职业化、商业化、产业化等还有很长的路要走，需要在以往发展的基础上，借鉴球类、冰雪类运动的发展理念和思路，不断解决搏击运动规范化、标准化前进道路中的问题。在搏击运动不断谋求国家化发展的过程中，越来越多的搏击运动工作者和爱好者致力于摸索和探寻属于各国不同特色的搏击运动国际化推广道路。

一：技术优势的发挥，需要以攻击和防御能力都具备为重要保障，否则就无法真正得到发挥。增强自身的攻击强度和精度，提高对抵御能力的训练，从而才能在比赛中增强对抗性。菲律宾搏击在踢、打、摔和肘、膝的综合运用技术为搏击运动规则的改革和完善提供了重要参考。

二：比赛中战术要积极主动，在平时的训练中搏击运动员要增强主动攻击战术的训练，将主动进

攻作为战术策略，将防御作为辅助策略。

三：摔跤是搏击运动中的杀手锏，可以在一定程度弥补拳法的攻击力度不和以及腿部力度的缺乏，但是随着其它国家对这方面的研究，这种技术优势正在逐渐消失。需要进一步对摔跤的技术进行完善，使搏击运动员的技能提升。

四：在拳法上要加强连贯性的训练，加强组合拳的训练，尤其是摆拳和勾拳之间组合的训练，从而能够使连续出拳的能力提高。在腿法上要注重对进攻的训练以及对侧踹和腿部力量的训练。要加强对膝法得到训练，做到拳、腿、膝之间组合运用。

4.2 建议

（1）社会组织承担作用，普及搏击运动事业

要想使中国和菲律宾的搏击运动事业能够进一步的提高，必须确保搏击运动在宽松的环境里获得新的发展，不仅包括运动员的稳定职业化路径，还有赛事的有序组织，这里边都需要搏击社会组织承担起相应的责任并引领发展方向，使其充分发挥专业能力和社会资源协调统筹能力，在此基础上，政府各级部门尤其是体育管理部门和文旅部门，对社会组织进行适度的协助，将搏击运动的组织、运营等相关权利定向下放至协会、赛事组织机构中，使其秉承搏击运动行业良性发展的理念进行有限空间的想象力发挥，政府与社会组织通力协作，在社会上普及搏击运动事业。

（2）加大推广普及力度，促进搏击运动事业稳固前进

现阶段搏击运动自身技术需要完善以外，还需要加大搏击运动推广普及力度，要引起社会各界的关注，在宣传和策划等方面做足功夫，充分利用先进技术，加强宣传力度，打造在群众中有巨大影响力的精品赛事，提高群众基础。政府要做好配合，增加比赛场馆，从而使大众的需求得到充分满足。

（3）打造明星效应，推动搏击运动事业繁荣发展

世界上的几个搏击类项目如美国的终极格斗冠军赛及职业拳击赛、日本的 K—1 比赛都塑造出了很多的明星，推动了赛事的发展，带动了搏击事业的发展繁荣。要想使中国和菲律宾搏击运动在国际上有一席之地，要打造明星效应，培养几名超级明星，这样才能使搏击运动在群众中拥有庞大基础，促进搏击运动事业的繁荣发展。

（4）增加对搏击运动赛事的资金和安全保障，提高对搏击运动的扶持力度

搏击运动商业赛事要想快速的发展，首先必须取得资金上的支持。因为搏击运动赛事的投资人、管理人和运营机构都是将盈利作为赛事举办的前提条件。如果想要提高赛事举办质量及社会关注度，必须有资金的支持，这是搏击运动赛事能够正常运行的根本。对于参加搏击运动赛事的运动员的奖金也是必不可少的，因为他们是搏击运动赛事的主体，应该获得丰厚的薪酬，从而能够激励更多的优秀搏击运动员参与到搏击运动赛事中来，使搏击运动赛事的观赏性得到增加。此外，搏击运动赛事要具备安全保障，具有完备的医疗后勤条件，使搏击运动员的生命安全得到保障，从而为他们解除后顾之忧。

（5）完善搏击运动市场运营体系，推动搏击运动事业健康稳定发展

与国际上的一些搏击运动先进国家相比，中国和菲律宾搏击运动起步较晚、发展较慢、体系缺乏，经过 30 多年来的不断发展、创新和完善，虽然有了显著的提高，但是为了今后搏击运动市场化的推广普及，必须与国际接轨，做到与时俱进，在对优秀的搏击运动员进行培养的同时，还需要培养能够具

有搏击运动相关技术、管理和运营等方面的人才，使搏击运动的职业化水平提升，完善搏击运动市场运营体系，从而推动搏击运动事业健康稳定发展。

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Journal of Advanced Academic Research and Studies 高等学术研究期刊
Vol. 3, No.10, 2026 (pp. 62-68)
http://www.nlbaeai.org/

ISSN 3006-4007 (Print)
ISSN 3006-4015 (Online)

Practical Research and Analysis on Integrating Ideological and Political Education into College Boxing and Sanda Courses

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Received 18 July 2026, Revised 24 September 2026, Accepted 27 October 2026

Abstract

Purpose – This study examines how ideological and political education (IPE) can be systematically embedded in college boxing and sanda courses and evaluates the effectiveness of that integration, thereby providing empirical evidence for value-oriented education in combat sports curricula.

Design/Methodology/Approach – A one-semester teaching reform was implemented at a Chinese university. Four observable and quantifiable dimensions—martial arts ethics and etiquette, rule awareness, volitional quality and teamwork—were specified, and a combined process-and-outcome assessment was administered to 219 undergraduates enrolled in basic and advanced (Physical Education VI) boxing and sanda courses.

Findings – The overall pass rate was 63.47% (139 of 219 students), with pronounced disparities across grades and course levels.

Research Implications – This study provides empirical evidence and a transferable assessment framework for IPE in sanda and comparable combat sports courses, and identifies tiered content design, grade-specific guidance, full-process multi-source evaluation and systematic teacher development as practical priorities for curriculum reform.

Keywords: College physical education; Boxing and Sanda; Ideological and Political Education in Curriculum; Teaching Reform; Educational Practice
JEL Classifications: I21, I23

Financial source: Southern University of Science and Technology, School of Humanities and Social Sciences, Party Committee 'Polaris Program' Curriculum Ideological and Political Demonstration Course Achievement
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I. 引言

课程思政理念要求各类课程充分挖掘内在育人元素，将价值引领贯穿于教育教学全过程，实现知识传授、能力培养与思想塑造的有机统一。体育课程兼具强身健体、品格锤炼、精神培育等多重功能，在思政育人方面具备天然优势。搏击散打作为民族传统体育竞技项目，承袭中华武术“习武先习德”的文化内核，训练过程强调吃苦耐劳、坚韧不拔，竞技环节讲究尊重对手、恪守规则，团队配合倡导互帮互助、凝心聚力，蕴含着丰富且具象的思政教育资源，是高校推进课程思政建设的优质载体（卢阳等，2025；张陵，2022）。

现阶段国内多数高校搏击散打课程仍沿用传统教学模式，教学重心偏向技术动作、攻防战术与身体素质训练，普遍存在“重技能、轻德育”的现象。课程内的武德文化、体育精神、竞技品德等思政元素挖掘不深入、融入方式生硬，且缺乏系统化、可量化的评价标准，思政育人流于形式。梳理现有文献可知，当前关于搏击散打课程思政的研究多集中于理论探讨、价值解读与宏观路径构想（曹龙飞，2023；李浩然，2023；卢阳等，2025；张陵，2022），依托真实教学考核数据开展的实证研究数量偏少，针对不同年级、不同难度课程的差异化分析更为匮乏（刘坤，2026；王健，2024），难以支撑教学改革落地。

基于上述背景，本研究结合一学期完整的教学实践，搭建一体化思政考核评价体系，通过量化数据客观分析课程思政的实施成效与现存问题，剖析问题成因并制定针对性改进方案，旨在推动高校搏击散打课程实现技能教学与思政育人深度融合，同时为同类对抗性体育课程的思政建设提供实践借鉴。

II. 研究对象与研究方法

2.1 研究对象

本研究以本校大一、大二、大三、大四修读体育搏击散打课程的全日制学生为研究对象。按照教学难度将课程划分为基础搏击散打课程与高阶搏击散打课程（体育 VI）两大类型，样本覆盖多个学段与课程层级，数据能够客观反映课程思政的实际开展情况。

2.2 研究方法

（1）文献资料法：通过检索中国知网等数据库，查阅体育课程思政、武术教学改革、体育评价体系构建等相关专著、期刊论文与研究报告，梳理相关理论成果与前沿研究动态，为本研究奠定理论基础（曹龙飞，2023；刘坤，2026；卢阳等，2025；王健，2024；张陵，2022）。

（2）数据统计法：收集本学期搏击散打课程思政专项考核原始数据，对整体合格率、平均分、缺考率、变异系数等指标进行统计整理，以量化形式呈现育人效果。

（3）对比分析法：横向对比不同年级学生的考核数据，纵向对比基础课程与高阶课程的育人差异，精准识别育人薄弱环节。

（4）逻辑分析法：结合课堂教学实际解读数据特征，归纳现存问题，剖析问题产生的深层原因，并推导科学可行的优化对策。

III. 课程思政实践方案设计

3.1 确立思政考核核心维度

结合搏击散打项目特点与高校立德树人育人目标，摒弃空泛化的思政内容，设置四项可观测、可量化的考核维度：一是武德礼仪，涵盖尊师重道、赛场礼仪、日常言行规范等内容；二是规则意识，包含遵守课堂纪律、服从竞赛规则、秉持公正竞技理念；三是意志品质，重点考核训练态度、抗压能力与抗挫折精神；四是团队协作，评价双人配合训练、同伴互助及集体荣誉感（曹龙飞，2023；张陵，2022）。

3.2 构建多元融合考核体系

打破单一技能考核模式，建立过程性考核 + 终结性考核、技能考核 + 思政考核相结合的综合评价体系。将学生思政表现纳入日常课堂考核，实行随堂记录、阶段测评、期末总评的全流程量化打分，思政成绩按比例计入课程总成绩，保障评价的客观性与完整性，杜绝课程思政“重形式、轻落实”的问题。

IV. 实践结果与数据分析

4.1 整体实施成效

数据统计显示，本次搏击散打课程思政考核总体合格率为 63.47%。该结果表明，思政元素融入课堂已取得初步成效，超六成学生能够在学习技术的同时，自觉遵守礼仪规范、恪守课堂纪律、保持良好训练状态。但整体达标率偏低，近四成学生思政素养未达到考核要求，课程思政整体育人均衡性不足，仍有较大提升空间。

表 1：搏击散打课程思政考核整体实施成效

年级	总人数	及格人数	及格率	不及格人数	不及格率	缺考人数	缺考率
大一	48	38	79.17%	10	20.83%	0	0.00%
大二	88	67	76.14%	21	23.86%	0	0.00%
大三	71	33	46.48%	38	53.52%	0	0.00%
大四	9	1	11.11%	5	55.56%	3	33.33%
大四以上	3	0	0.00%	3	100.00%	0	0.00%
合计	219	139	63.47%	77	35.16%	3	1.37%

4.2 分年级数据对比分析

表 2：搏击散打课程思政考核结果分年级对比

年级	课程	总人数	平均分	及格率	缺考人数	缺考率
大一	体育Ⅱ	48	79.79	79.17%	0	0.00%
大二	体育Ⅳ	88	83.52	76.14%	0	0.00%
大三	体育Ⅱ	3	100.00	100.00%	0	0.00%
大三	体育Ⅳ	10	85.00	80.00%	0	0.00%
大三	体育Ⅵ	58	49.14	37.93%	0	0.00%
大四	体育Ⅱ	1	0.00	0.00%	0	0.00%
大四	体育Ⅳ	4	50.00	0.00%	3	75.00%
大四	体育Ⅵ	4	50.00	25.00%	0	0.00%
大四以上	体育Ⅳ	3	0.00	0.00%	0	0.00%

（1）低年级（大一、大二）：育人效果稳定良好

大一学生考核合格率为 79.17%，平均分为 79.79 分；大二学生合格率 76.14%，平均分为 83.52 分。两个年级整体合格率与平均分均处于较高水平，成绩离散度小，群体表现均衡稳定。

大一、大二学生学业压力较小，课堂专注力与规则执行力较强。同时低年级以基础搏击散打课程为主，思政内容以基础礼仪、课堂纪律、入门武德为主，内容简单直观，易理解、易践行，思政教育与课堂教学适配度高，育人效果理想（张陵，2022）。

（2）大三学生：高阶课程育人效果大幅下滑

大三学生整体考核合格率降至 46.48%，是育人效果出现明显转折的关键学段。其中修读高阶搏击散打课程的学生问题最为突出，课程平均分仅 49.14 分，合格率 37.93%，变异系数达 0.7872，成绩两极分化现象十分严重。

高阶课程技术难度大、对抗性与竞技性更强，对应的思政要求也从基础礼仪，升级为正确胜负观、竞技道德、逆境抗压能力等深层次内容。大三学生面临专业课学习、职业考证、校外实习等多重事务，分配至体育课程的时间与精力有限；加之现有思政内容与考核标准未结合高阶课程特点同步优化，内容浅层化、同质化，无法匹配高阶课程“正确胜负观、竞技道德、逆境抗压能力”的育人需求（曹龙飞，2023；王健，2024），最终导致考核成绩大面积下滑。

（3）大四学业延期学生：育人效果最差

大四参与课程学习的主体为学业延期学生，该群体思政考核合格率仅 11.11%，缺考率高达 33.33%，为全学段最低水平。受学业延期影响，该部分学生心态消极，学习动力严重不足，将工作求职、

学业整改作为首要目标，普遍出现旷课、缺考、消极训练等行为，纪律意识、习武态度、意志品质等思政指标难以落地，成为课程思政育人的薄弱群体。

4.3 成绩离散度变化分析

从变异系数变化趋势来看，大二至大四学生成绩变异系数持续上升，成绩离散度不断扩大。这一现象说明，随着年级升高，学生在学习态度、自律能力、体育品德等方面的个体差距逐步拉大，高年级思政教育引导工作难度显著增加，同时也证明本次搭建的量化考核体系具备良好的区分度与科学性。

表 3：各年级搏击散打课程思政考核成绩离散度比较

年级	有效成绩总数	平均分	标准差	变异系数（CV）	缺考人数	缺考率
大一	48	79.79	35.60	0.4462	0	0.00%
大二	88	83.52	31.73	0.3799	0	0.00%
大三	71	56.34	44.35	0.7872	0	0.00%
大四	6	41.67	34.36	0.8246	3	33.33%
大四以上	3	0.00	0.00	0.0000	0	0.00%

V. 现存问题及成因分析

5.1 主要问题

第一，育人效果年级分化显著，大三高阶课程、大四学业延期学生成为思政育人短板，学生成绩两极分化问题突出；第二，思政内容与课程层级不匹配，基础课程与高阶课程使用统一的内容与考核标准，高阶课程思政深度不足、针对性欠缺；第三，高年级学生学习心态失衡，受学业、就业等因素影响，课堂参与积极性大幅下降，旷课、缺考现象频发；第四，评价与管理体系不完善，考核侧重期末结果，过程监督、动态帮扶机制缺失，无法及时纠正学生的不良学习状态。

5.2 成因剖析

从学生层面来看，不同年级学生的发展目标与生活重心存在明显差异。低年级学生以课内学习为主，能够主动接受思想引导；高年级学生受升学、实习、毕业等现实因素干扰，对体育课程重视程度降低，学习重心发生偏移。从课程层面来看，思政教学设计采用“一刀切”模式，未根据课程难度、学段特征进行分层设计，高阶课程未能充分挖掘竞技对抗背后的德育内涵（曹龙飞，2023；王健，2024）。

从管理层面来看，学校缺少针对高年级、特殊学情群体的专项管理办法，课堂纪律约束与常态化思想引导缺位，过程管理漏洞明显。

VI. 优化策略

6.1 分层设计思政教学内容，适配不同课程层级

依据课程难度实施差异化思政教学。基础搏击散打课程以武德礼仪、课堂规则、基础团队协作为核心，夯实学生体育品德根基。高阶搏击散打课程结合高强度对抗、竞技比拼的教学场景，融入胜负观教育、抗挫折教育、公平竞技精神与传统武术文化内容，推动思政内涵与课程难度同步提升，实现技术训练与价值引领深度融合（曹龙飞，2023；王健，2024）。

6.2 实施分年级精准育人，疏导学生心态

对于低年级学生，延续现有教学模式，持续强化礼仪教育与规则教育，巩固育人成果。针对大三学生，精简形式化考核环节，将思政教育融入实战对抗、小组训练、模拟竞赛等场景，以情景化引导替代生硬考核，缓解学生学业压力带来的抵触情绪。针对大四学业延期学生，开展一对一谈心交流，疏导消极心态；适当降低技能考核难度，将出勤、纪律、基础礼仪作为核心考核内容，以督促和鼓励为主，减少缺考、弃课行为。

6.3 完善全过程多元评价体系

构建“教师评价 + 学生自评 + 同伴互评”三位一体的评价模式，强化过程性考核。将日常出勤、训练表现、礼仪行为、协作状态等纳入常态化记录，为学生建立体育思政成长档案，做到每周反馈、月度总结、期末综合评定，及时发现并干预问题，改变“一考定结果”的片面评价模式（刘坤，2026）。

6.4 建立专项督导机制，强化课堂管理

针对大三高阶课程、大四学业延期学生两大薄弱群体，设立专项督导岗位。对缺勤、训练态度消极的学生及时进行提醒与辅导；联动辅导员打通体育教学与日常学生管理，形成育人合力；完善缺考、补考、重修等管理制度，严肃课堂学风，从制度上遏制学习懈怠问题。

6.5 加强师资培训，提升教师思政教学能力

定期组织专项培训、教学研讨与公开课活动，引导搏击散打教师深入挖掘项目背后的武德文化与

育人价值。推动教师将思政元素自然融入技术讲解、对抗指导、课堂点评等各个环节，摒弃生硬说教，实现“润物细无声”的浸润式思政教育（刘坤，2026；卢阳等，2025）。

VII. 结语

搏击散打课程依托中华武术文化根基，具备得天独厚的思政育人优势。本次实证研究表明，当前高校搏击散打课程思政建设已初见成效，但育人效果受年级、课程层级、学生心态等因素影响，呈现出明显的分化特征，高年级高阶课程与学业延期学生群体是主要短板。

针对现存问题，通过分层构建思政教学内容、推行分年级精准育人、优化全过程评价机制、落实专项督导管理、强化教师思政能力等举措，能够有效破解课程思政落地不均衡、育人不深入的现实困境。未来可将本研究的思路与模式推广至武术、搏击、球类等各类对抗性体育课程，持续探索体育课程思政的实施路径，充分发挥体育“以体育人、以武立德、以技塑魂”的综合价值，助力高校落实立德树人根本任务。

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Journal of Advanced Academic Research and Studies 高等学术研究期刊
Vol. 3, No.10, 2026 (pp. 69-77)
http://www.nlbaeai.org/

ISSN 3006-4007 (Print)
ISSN 3006-4015 (Online)

Implicit Education of Calligraphy in Online University Ideological and Political Work

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Received 11 July 2026, Revised 12 September 2026, Accepted 08 October 2026

Abstract

Purpose – This paper aims to explore feasible approaches to integrating calligraphy art into online ideological and political education in universities in the digital era.

Design/Methodology/Approach – Guided by the implicit education theory, this paper adopts theoretical sorting and practical dilemma analysis to systematically elaborate the diversified educational values of calligraphy art in the online ideological and political work of higher education institutions.

Findings – It is found that calligraphy art naturally possesses the characteristic of silent and gradual edification of implicit education, and can realize multi-dimensional educational effects in fostering moral conduct, refining aesthetic taste and carrying forward fine traditional Chinese culture.

Research Implications – This research not only expands the carrier horizon of online ideological and political education in colleges and universities, but also deepens the rational understanding of the contemporary educational value of traditional calligraphy art. It also provides solid theoretical support and practical reference for the innovative development of ideological and political work in the new historical period, and offers reference for the integration of fine traditional Chinese culture into ideological and political education.

Keywords: Online ideological and political education in universities; calligraphy art; implicit education; fine traditional Chinese culture

JEL Classifications: I23, ,Z11, A13

Financial source: This paper is supported by the following projects at Shaanxi University of International Trade and Commerce: Online Ideological and Political Research Project "Research on Value Guidance of Online Ideological and Political Education in Universities Based on the Communication of Calligraphy Art" (Project No.: WLSZ202510)

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I. Introduction

With the continuous advancement of digital information technology, cyberspace has grown into the primary arena for university students to acquire information resources, express personal thoughts, and construct individual value systems. The construction quality of online ideological and political education directly determines the implementation effect of the fundamental task of fostering virtue through education on campus. Nevertheless, the traditional mode of ideological and political education mostly relies on rigid and explicit verbal preaching. Under the online environment marked by fragmented information content and diversified value concepts, the appeal and penetration capacity of traditional ideological teaching are facing severe challenges. It has become an urgent research subject to realize positive value guidance by adopting implicit educational methods and drawing nourishment from the outstanding traditional culture of the Chinese nation.

General Secretary Xi Jinping pointed out that calligraphy stands as a precious treasure of Chinese civilization that carries abundant spiritual connotations and inner vitality. He further emphasized that calligraphy practice can effectively elevate people's cultural accomplishment, cultivate refined temperament, and foster noble and upright spiritual integrity. The official document Opinions on Earnestly Strengthening Aesthetic Education in Institutions of Higher Learning in the New Era, issued by the Ministry of Education of the People's Republic of China, clearly sets forth the educational objectives of cultivating individuals, refining temperament and consolidating spiritual foundation through aesthetic education. This policy document also incorporates traditional artistic forms including Chinese calligraphy into the core scope of school aesthetic education systems. Driven jointly by top-level policy guidance and widespread cultural self-awareness among educators, the status of calligraphy art within the comprehensive education system of higher education institutions has been remarkably elevated. Even so, the integration of calligraphy art and university ideological and political work is mostly confined to offline cultural activities. Systematic academic research on the implicit educational value of calligraphy within the online ideological and political field remains insufficient. Calligraphy art delivers ideological concepts through visual aesthetic experience so as to cultivate people's spiritual realm and shape personal moral character. This form of teaching without rigid verbal instruction is highly consistent with the internal demands of online ideological and political education. For this reason, systematically exploring the implicit educational functions of calligraphy art and designing targeted implementation paths for online ideological and political education bears prominent theoretical and practical significance.

II.Theoretical Connotation of Implicit Education and the Field Characteristics of Online Ideological and Political Education

1. Connotation of Implicit Education

"uphold the unity of explicit education and implicit education." (Xi Jinping. 2022) ,As a mature educational ideology, implicit education features hidden educational intentions, permeating educational processes and

cumulative educational outcomes. Distinct from traditional explicit classroom education, implicit education does not depend on formal classroom lectures and rigid theoretical indoctrination. Instead, educators shape students' values and personalities imperceptibly by constructing educational environments and organizing practical experience activities. Rooted in real daily life, traditional arts convey educational purposes through metaphor and symbolic expression, which naturally fit the internal logical mechanism of implicit education.

Within the practical context of university ideological and political education, the educational value of implicit education has become increasingly prominent. The core objective of constructing the comprehensive ideological and political curriculum lies in integrating all-round educational resources, breaking down the barriers of single classroom teaching, and establishing a collaborative education system covering all fields, all sectors and all educational elements. Re-examining the educational potential of traditional cultural resources from the perspective of implicit education helps achieve the organic integration of knowledge transmission and positive value guidance.

2. The Implicit Transformation and Aesthetic Space of University Online Ideological and Political Education

In the networked environment, the interactive relationship between educators and student recipients tends to become more equal. Students accept information mainly based on emotional resonance and ideological identification. The implicit educational activities carried out via university online cultural platforms deliver diversified educational effects in shaping students' value outlook, standardizing daily behaviors, improving comprehensive personality, and cultivating innovative thinking capacity. The essential requirement of online ideological and political education is to spread mainstream social values in a gradual and subtle way, which forms deep logical correspondence with the aesthetic infiltration characteristics of calligraphy art.

"Calligraphy is an artistic form derived from the practical writing of Chinese characters. The evolution of Chinese characters is built upon the practical demands of information transmission. Therefore, calligraphy developed from daily character writing inherently possesses the attribute of cultural communication." (Tang Chuansheng, 2023) Compared with rigid theoretical preaching, plastic arts represented by calligraphy possess tangible and perceptible communication advantages and can construct a unique aesthetic field within online scenarios. As an irrational and non-utilitarian emotional activity, aesthetic experience can arouse emotional resonance among university students and realize the gentle transmission of ideological values. Accordingly, introducing calligraphy art into online ideological and political education is not only a concrete practice of implicit educational strategies but also an inevitable requirement for the deep integration of aesthetic education and ideological and political education.

III. Multidimensional Analysis of the Implicit Educational Functions of Calligraphy Art

Calligraphy is far more than simple handwriting practice; it occupies the core position of traditional Chinese culture. Calligraphy art carries profound cultural educational implications. When analyzing this cultural form from the perspective of implicit education, its educational functions can be classified into three interconnected dimensions: moral cultivation, aesthetic development, and cultural identity building.

1. Moral Cultivation

The implicit moral education function of calligraphy art originates from the traditional Chinese critical judgment that a person's handwriting reflects his personality and that an upright inner mind leads to standard brushwork. Starting from Yang Xiong's famous statement that calligraphy serves as the spiritual reflection of the soul, to Liu Gongquan's viewpoint that brush writing is governed by inner thought and upright mind guarantees correct brush movement , and further to Liu Xizai's elaboration that calligraphy fully mirrors the writer's knowledge, talent, aspirations and entire personality.(Ancient Books Collation Research Office, East China Normal University. 2014) Traditional Chinese calligraphy theories have always closely combined writing practice with moral self-cultivation. This educational tradition does not rely on external moral regulations and discipline; instead, it nurtures individuals' moral integrity naturally through the whole process of calligraphy practice.

When students engage in calligraphy copying practice, choosing classic calligraphy works with moral educational connotations can bring gradual and imperceptible educational outcomes. For instance, the rigorous structural layout and standardized strokes of Ouyang Xun's regular script embody a precise, earnest and rigorous academic attitude. During copying practice, students can master basic writing techniques while appreciating the moral demeanor and spiritual pursuit of the ancient calligrapher. Yan Zhenqing's loyal personality and powerful brush style provide a vivid moral model for university students. The strong patriotic sentiment and heroic spirit contained in his work Eulogy to My Nephew transcend pure aesthetic value and generate powerful moral inspiration. This mode of moral cultivation with brush and ink as the medium and writing practice as the process perfectly embodies the silent educational effect of implicit education.

2. Aesthetic Development

As an indispensable component of quality-oriented education, the core educational function of aesthetic education is to take aesthetic experience as a bridge and guide students to complete the transformation from perceptual cognition to rational value identification. During the teaching and popularization of calligraphy art, students gradually form aesthetic judgment standards for brush techniques, character structure, layout and artistic conception through appreciation, evaluation and repeated practice. Meanwhile, they are imperceptibly

influenced by the aesthetic spirit of traditional Chinese civilization.

The appreciation of calligraphy works is never a simple visual activity; it constitutes a comprehensive aesthetic experience integrating cultural comprehension, historical perception and emotional resonance. When students copy the Preface to the Lanting Collection, they not only practice writing skills of running script but also comprehend the life philosophy and noble integrity of literati living in the Eastern Jin Dynasty. When students appreciate Yan Zhenqing's calligraphy works, the loyal moral character embodied in his powerful brush style is transmitted quietly through aesthetic experience.

Within the networked environment, visual effect becomes the primary channel of information communication. The strong visual expression of calligraphy art can quickly attract university students' attention. Its unique advantages in stimulating emotional resonance and realizing value infiltration effectively make up for the deficiencies of traditional ideological and political content, which suffers from monotonous forms and insufficient emotional appeal.

3. Cultural Identity Building

In university ideological and political work, cultivating students' sense of recognition and belonging toward outstanding traditional Chinese culture stands as an important direction to fulfill the fundamental task of fostering virtue through education."The core point of cross-cultural communication is to seek ideological consensus on cultural connotations, build cultural connections, and avoid cultural estrangement." (Jin Meng, 2022) As a core cultural carrier of Chinese civilization, calligraphy art exerts an irreplaceable function in constructing cultural identity among young students.

From a diachronic perspective, the evolutionary process of calligraphy keeps consistent with the historical development of Chinese civilization. Oracle bone inscriptions of the Shang Dynasty, seal script of the Qin Dynasty, clerical script of the Han Dynasty, running and cursive scripts of the Wei and Jin Dynasties, and standardized regular script of the Tang Dynasty all carry specific historical connotations and spiritual features of different eras, forming a dual developmental map of character evolution and aesthetic changes. By learning and appreciating various calligraphic styles, students can intuitively perceive the long-standing and continuous historical development of Chinese civilization. From a synchronic perspective, the artistic characteristics of integrating external form with inner spirit and pursuing vivid artistic conception reflect the unique aesthetic ideals and spiritual pursuit of the Chinese nation.

The cultural educational value of calligraphy also lies in its profound mechanism of stimulating national emotions and awakening collective cultural memory. The Fine Arts School of Linyi University makes full use of the local cultural resource of being the hometown of the Sage of Calligraphy. Taking the six formation principles of Chinese characters as the starting point, teachers guide students to analyze character construction rules including pictography, self-explanatory characters and associative compounds. Students can trace the origin of Chinese characters and dig out the implicit ideological and political connotations embedded in cultural inheritance and ideological development. Compared with rigid knowledge indoctrination, this teaching mode

rooted in cultural origins can better arouse sincere cultural identity among university students.

The above implicit educational functions are theoretically distinct and clear. Nevertheless, in the daily practice of university online ideological and political education, the aesthetic infiltration brought by calligraphy is often simplified into pure skill training, while cultural inheritance is reduced to superficial imitation of writing styles. The moral edification and value guidance effect of calligraphy cannot be fully activated. The primary restrictive factors include biased cognitive understanding, insufficient educational resources and poor adaptation to new media environments. This situation compels educators to redesign practical channels to integrate calligraphy art into online ideological and political education systems.

IV. Practical Implementation Paths Under the Vision of Online Ideological and Political Education

1. Online Exhibition and Virtual Reality Experience

Reconstructing the presentation form of calligraphy art with digital information technology serves as an effective way to expand its implicit educational functions. The application of immersive technologies including virtual reality and augmented reality enables traditional offline calligraphy exhibitions to move onto online cloud platforms and build an all-weather educational space that breaks the limitation of time and geographical space. The educational advantage of immersive online exhibitions lies in overcoming the time and location barriers of physical exhibitions, so that more university students can conveniently appreciate classic calligraphy works. Interactive functions such as freely switching viewing angles and closely observing delicate brush details can greatly enhance students' participation and engagement. After visiting the online exhibition, schools can carry out supplementary online interactive activities including short video interpretations of high-quality works, interviews with calligraphers, and collection of visitors' experience articles, so as to further enrich the channels of implicit education. This communication logic that takes aesthetic experience as the entry point, takes personal experience as the educational process and takes value shaping as the ultimate goal represents a typical mode of implicit education of calligraphy within online ideological and political education.

2. Short Video Production and Interactive Online Teaching

If virtual reality exhibitions represent the immersive path of calligraphy-based ideological and political education, short video creation and social media content production constitute another vital dimension of participatory cultural communication. Short video platforms feature high communication efficiency, strong emotional stickiness and large youth audiences, which have become indispensable positions for online ideological and political education. Teachers can produce short videos themed on Party history stories and social hot issues to transmit ideological and political content gently in forms easily accepted by young

university students.

The educational value of short videos and social media in the implicit education of calligraphy art is also reflected in the cultivation of students' subjective consciousness through independent content creation. When university students transform from simple viewers of calligraphy works into creators and communicators of calligraphy culture, their cultural identity and internalized value concepts will be greatly strengthened. Universities can encourage students to produce calligraphy works themed on campus life and contemporary social development. Students can share the whole creation process through short video clips and graphic articles on online platforms, forming online cultural communities connected by calligraphy and artistic communication. This output-oriented participatory communication mode not only expands the influence of calligraphy art but also realizes positive value guidance for students throughout the whole creation process.

3. Cross-media Content Production

The full exertion of calligraphy's implicit educational functions within online ideological and political education relies on universities' creative transformation of traditional calligraphy cultural resources. The historical information and cultural codes contained in calligraphy works need to be translated into contemporary narrative discourse and modern media language to achieve better understanding and recognition among young college students.

Cross-media content production can be carried out on multiple levels. First, integrate red revolutionary cultural resources with calligraphy art. Organize students to create themed calligraphy works describing major historical events of the Communist Party of China and heroic revolutionary figures, so that revolutionary spiritual heritage can be passed down in visual forms. Second, combine traditional calligraphic aesthetics with digital artistic forms to produce traditional Chinese-style short films and dynamic character libraries with profound cultural connotations and strong visual impact, exploring modern innovative expression modes of traditional calligraphy. Third, extend calligraphic artistic elements to cultural and creative product design and campus environmental construction. This measure can bring calligraphic aesthetic experience into students' daily life and realize the transformation from superficial visual perception to inner spiritual recognition.

4. Empowerment Through Artificial Intelligence Technology

The rapid development of artificial intelligence technology provides unprecedented technical support for expanding the implicit educational functions of calligraphy art. From the perspective of implicit education, the core value of artificial intelligence technology lies in realizing precise guidance for aesthetic experience and dynamic evaluation of educational outcomes.

In terms of teaching practice, artificial intelligence technology can conduct real-time evaluation on calligraphy works by means of high-precision image recognition and handwriting analysis. The intelligent system can accurately identify problems in brushwork, character structure and layout and put forward targeted

improvement suggestions for learners. This personalized auxiliary teaching mode can improve students' learning efficiency, strengthen their sense of achievement and aesthetic experience in repeated practice, and further stimulate their inner motivation for continuous calligraphy study. In terms of extended application, many universities have begun to explore digital calligraphy teaching modes empowered by artificial intelligence and formed characteristic educational paths combining positive value guidance and modern technological support.

From the perspective of implicit education, the greatest advantage of artificial intelligence empowered calligraphy ideological and political education lies in the whole-process dynamic value guidance during students' aesthetic activities. Compared with traditional explicit ideological and political preaching, this implicit educational mode possesses stronger penetration and long-term sustainability. It effectively promotes the transformation of ideological and political education from passive acceptance to active internalization among university students. In future research, educators should further explore innovative applications of artificial intelligence technology in digging out ideological and political connotations contained in calligraphy works, interpreting digital stele calligraphy resources, and designing personalized aesthetic growth paths for students. We can fully convert technological advantages into tangible cultural educational effects.

The internal integration between university online ideological and political education and calligraphy art is never a random combination of different academic disciplines. Instead, it represents the inevitable embodiment of implicit educational logic within educational practice in the new era. Calligraphy art visualizes abstract moral concepts through unique aesthetic expression and completes the gentle transmission of mainstream values via implicit educational methods. The equal communication environment of cyberspace offers a broad platform for the immersive popularization of calligraphic aesthetics. Meanwhile, the unique path of value internalization realized through calligraphic aesthetic experience effectively meets the urgent demand of online ideological and political education for innovative forms and improved educational penetration.

Nevertheless, we must recognize that the implicit educational functions of calligraphy require systematic joint efforts from universities in online content construction, faculty team development and digital technology application. Only by combining in-depth excavation of calligraphy cultural resources with intelligent application of digital communication technology, and connecting the core spiritual value of traditional culture with the cognitive and receiving habits of young university students, can we truly fulfill the educational vision of conveying moral truth through calligraphy, cultivating people with aesthetic education and shaping souls with cultural nourishment. In this way, calligraphy art will continuously gain new vitality in the innovative practice of university online ideological and political education.

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Journal of Advanced Academic Research and Studies 高等学术研究期刊
Vol. 3, No.10, 2026 (pp. 78-86)
http://www.nlbaeai.org/

ISSN 3006-4007 (Print)
ISSN 3006-4015 (Online)

Empowering Immersive Teaching of Comprehensive English with School-Based Red Resources: A Teaching Reform Practice from the Perspective of Theme Adaptation

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Received 09 July 2026, Revised 15 September 2026, Accepted 05 October 2026

Abstract

Purpose – This study addresses fragmented ideological-political materials, superficial practices, and disconnection between language training and value guidance in Comprehensive English teaching at private colleges. Against the New Liberal Arts initiative, it takes English majors at Shaanxi University of International Trade & Commerce as a case, aiming to transcend Western cultural dominance and integrate local red culture.

Design/Methodology/Approach – Drawing on school-based red resources and Shaanxi red culture, this study constructs an integrated framework: resource transformation, textbook alignment, four-dimensional immersive classrooms, multi-scenario education, and process-oriented evaluation. Two texts, Globalization's Dual Power and Your College Years, are used to combine red cultural education with text analysis, language training, and critical thinking via thematic integration, tasks, and immersion.

Findings – This study elevates curriculum-based ideological-political education from "how to integrate" to "why, for whom, and how to educate effectively." It offers actionable solutions to break Western cultural dominance and achieve deep integration of red culture with language training and critical thinking.

Research Implications – This study redefines Comprehensive English teaching as a strategic cultural practice, providing a replicable paradigm for curriculum-based ideological-political reform.

Keywords: school-based red resources; Comprehensive English; curriculum-based ideological and political education; immersive teaching; teaching reform practice

JEL Classifications: Z32, O33, L83

Financial source: This paper is supported by the following projects at Shaanxi University of International Trade and Commerce: "Path Construction and Practical Exploration of Integrating School-Based Red Resources into Curriculum-Based Ideological and Political Education for English Majors" (KCSZ-ZX202618): "A Course on the TCM Theory of Concurrent Treatment of Heart and Brain" (Chinese-English Edition) (SMXK22202503).

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I. Introduction

With the nationwide advancement of curriculum-based ideological and political education, foreign language courses, as an important carrier for cross-cultural communication and value inheritance, play an increasingly vital educational role. As a core foundational course for junior English majors, Comprehensive English not only helps students consolidate linguistic competence but also undertakes the fundamental task of fostering virtue through education. In this context, carrying out teaching reform by combining regional red heritage and school characteristics has become an effective way to resolve existing problems in foreign language ideological and political education.

Since May 2020, the Guidelines for the Construction of Curriculum-based Ideological and Political Education in Institutions of Higher Learning have clearly stipulated that foreign language courses should give full play to their professional advantages, strengthen the dissemination of local culture and cultivate students' patriotism, and promote the quality development of curriculum-based ideological and political education instead of superficial integration. As a core course for English freshmen and sophomores, Comprehensive English is responsible for improving students' language skills, shaping their cross-cultural thinking and internalizing correct values, thus serving as a core platform for ideological and political education for foreign language majors.

Rooted in Shaanxi, a region renowned for its profound red heritage, Shaanxi University of International Trade & Commerce has amassed distinctive school-based red resources featuring both campus and regional characteristics. These resources include the university's philosophy of moral education, exemplary deeds of faculty and students dedicated to national development, on-campus red cultural venues, as well as the Yan'an Spirit and the Westward Relocation Spirit. They are highly in accordance with the educational objectives of higher education and the learning traits of junior students. From the perspective of textbook theme adaptation, this paper explores effective approaches to integrating school-based red resources into Comprehensive English via immersive teaching. It aims to realize the integrated development of textbook teaching, skill training and red cultural education, address the homogenization and superficiality of curriculum-based ideological and political education, and further advance the teaching reform of this course.

II. Value of Integrating School-based Red Resources into Immersive Teaching

Clarifying the connotation and characteristics of school-based red resources is the prerequisite for teaching reform. Different from conventional red educational materials, the school-based red resources in this study have undergone systematic screening, bilingual transformation and curriculum optimization with strong adaptability to classroom teaching. Their integration into immersive teaching can drive innovations in teaching content, mode and talent cultivation, and possess prominent theoretical and practical value.

The school-based red resources discussed in this paper refer to distinctive educational materials developed

for the teaching and reform of English majors. After systematic screening, bilingual translation and curriculum adaptation, these resources are characterized by campus uniqueness, teachability, high adaptability and strong operability, which distinguish them from conventional red materials. They are divided into three categories: first, on-campus red resources, including the university's educational mission, inspiring deeds of faculty and students, the university history museum and red cultural corridors; second, regional red resources of Shaanxi Province, covering the Yan'an Spirit, the Westward Relocation Spirit and stories of aspiring young people in old revolutionary base areas suitable for youth education; third, theme-matched red resources tailored for Comprehensive English, which can be directly applied to immersive classroom teaching in accordance with unit themes, oral topics and critical thinking tasks.

1. Content Innovation: Eliminating Material Homogenization and Realizing Precise Alignment with Textbook Themes

Traditional teaching of Comprehensive English generally relies on conventional red cases, which are arbitrarily combined with textbook themes and lack pertinence. In contrast, schoolbased red resources can be customized according to core textbook themes and facilitate the indepth integration of red spirits and thematic critical thinking. This approach effectively solves the disconnection between professional teaching and ideological and political education, and establishes a targeted and exclusive schoolbased teaching system for ideological and political education (Kou & Wang, 2026, p.231).

2. Mode Innovation: Transforming Teacher-centered Teaching and Establishing an Immersive Education System

This research abandons the simplistic model of "knowledge lecturing plus incidental ideological and political guidance", and constructs a four-dimensional immersive teaching mode consisting of situational immersion, task-driven learning, critical inquiry and on-site experience. With students as the main participants, textbooks as the carrier and red-themed tasks as the starting point, the whole teaching process integrates language input, skill output and value internalization. It realizes the transformation from teacher-centered lecturing to student-oriented experiential education.(Xu, 2024)

3. Talent Cultivation Innovation: Correcting Cross-cultural Cognitive Bias and Cultivating Interdisciplinary Foreign Language Talents

Most texts in Comprehensive English focus on Western culture and individualistic values, which may cause junior students to have deficiencies in expressing local culture and weakened cultural confidence. In immersive teaching based on school-based red resources, teachers interpret Western cultural topics while introducing local red values, the sense of youth responsibility and the concept of serving the country through industry. This

practice guides students to view Sino-Western cultural differences dialectically, and cultivates interdisciplinary foreign language talents who are proficient in foreign languages, rooted in local culture and competent in cultural communication. Such talent cultivation orientation conforms to the university's overall training objectives.(Zhang, 2026).

III. Predicaments of Immersive Curriculum-based Ideological and Political Education in Comprehensive English

From the perspectives of classroom practice, content integration, teaching scenarios and assessment mechanisms, the current implementation of immersive ideological and political education in Comprehensive English still faces multiple practical difficulties.

Insufficient Resource Adaptability and Shortage of Theme-matched Red Teaching Materials. Most existing red resources of the university are Chinese historical documents and campus cultural materials, which have not been adapted and translated to match textbook themes. Teachers lack exclusive teaching materials corresponding to specific texts and have to apply conventional red resources mechanically. Such practice fails to follow the logic of textbook teaching and results in insufficient innovation and pertinence in ideological and political education(Li, 2025).

Superficial Integration and Disconnection between Ideological and Political Education and Professional Teaching. In current classroom practice, curriculum-based ideological and political education is mostly treated as an additional component rather than an integral part of instruction. Red cultural elements are rarely incorporated into core teaching procedures, including intensive text reading, vocabulary analysis, translation training, thematic critical thinking, as well as English listening, speaking and writing. When interpreting Western-themed texts, teachers merely focus on linguistic knowledge, without making comparisons or conducting in-depth discussions on local red culture. Due to the lack of immersive experience activities, ideological and political education in class becomes superficial and formalistic.(Yan & Zhang, 2025).

Single Teaching Scenarios and Incomplete Educational Loop. Teaching activities are mainly confined to textbook cxplanation in classrooms. On-campus venues such as the university history museum and red cultural corridors, as well as off-campus red memorial halls across Shaanxi Province, remain underutilized. Meanwhile, online immersive learning platforms have not been systematically constructed. The disconnection between extracurricular red practice and classroom teaching makes it impossible to form a complete educational chain of "textbook learning-red culture perception-practical output", which weakens the sustainability of educational effects.

Backward Assessment Mechanisms and Inadequate Long-term Development of Teaching Reform. Backward Assessment Mechanism Hindering the Long-term Development of Teaching Reform Course Assessment dominated by written examinations, which account for 70% of the total score. The current evaluation system attaches importance to final results rather than learning processes. Students' bilingual expression of red culture,

participation in immersive classroom activities, thematic critical thinking and practical achievements are not included in assessment indicators. This situation fails to motivate students to engage in immersive ideological and political learning actively and impedes the long-term implementation of teaching reform.(Sun, 2025, p.45).

IV. Pathways to Integrating School-based Red Resources into Immersive Teaching of Comprehensive English

To address the above problems, this study strictly follows the requirements of Guidelines for the Construction of Curriculumbased Ideological and Political Education in Institutions of Higher Learning (Ministry of Education of the People's Republic of China, 2020). Combining the university's regional red advantages, the course characteristics of Comprehensive English and the rules of immersive teaching, this paper constructs a systematic implementation framework from four dimensions: resource transformation, classroom reconstruction, scenario expansion and assessment optimization. The ultimate goal is to develop a feasible and promotable immersive teaching system for curriculumbased ideological and political education.1. Thematic Material Transformation and Construction of Targeted Resource Library

Abandoning the practice of simply compiling miscellaneous materials, this study takes two core textbook texts as examples to conduct targeted transformation of school-based red resources in a modular, bilingual and teaching-oriented manner. It follows the working principle of one text, one set of exclusive materials and one educational theme. For Globalization's Dual Power, which focuses on cultural competition and international communication against the backdrop of globalization, we compile bilingual interpretations of the Westward Relocation Spirit and the Yan'an Spirit, and collect bilingual cases of cross-cultural exchanges among faculty and students to support the teaching of cross-cultural critical thinking. For Your College Years, themed on youth development and career planning, we sort out the university's original educational mission, inspiring stories of outstanding students, practices of serving the country through business and red culture promotion activities. These contents are adapted into bilingual passages, oral topics and writing materials suitable for junior students, which can be applied throughout the whole teaching process of the texts.

2. In-depth Integration with Textbooks: Implementing Four-dimensional Immersive Teaching Based on Two Representative Texts

School-based red resources are fully embedded into four core teaching links: course lead-in, text intensive reading, language training and thematic critical thinking. A replicable immersive teaching paradigm is established to improve students' linguistic competence and red cultural literacy simultaneously.

2.1 Immersive Teaching on International Dissemination of Red Culture amid Globalization — A Case Study of Globalization's Dual Power

This text explores the dual impacts of globalization, cultural integration and cultural competition, and serves as key material for cultivating students' cross-cultural cognition and international communication competence. Traditional teaching overemphasizes the positive influences of Western globalization theories while ignoring the inheritance and international communication of local culture, which may lead to students' one-sided cultural cognition. This reform designs a four-dimensional immersive teaching process based on school and regional red resources.

In the situational lead-in stage, bilingual short videos about the university's red culture promotion and the overseas communication of Shaanxi red culture are played to create a realistic context of global cultural competition and help students recognize the international value of local red culture.

In the text intensive reading stage, combined with concepts such as "cultural invasion" and "cultural homogenization" in the text, we compare the logic of Western cultural expansion with the inclusive connotation of the Westward Relocation Spirit: taking root in Western China and dedicating to national development. Combined with the university's positioning of serving local development, students' understanding of cultural persistence in the era of globalization is deepened.

In the skill training stage, hierarchical tasks are designed. Students first consolidate basic knowledge through Chinese-English translation of red-related words and phrases, and then practice paragraph translation of red spirits to improve their ability to translate local red discourses into foreign languages. In the assignment stage, oral and writing tasks such as How to spread local red culture in the context of globalization are assigned. Combining textbook contents and school-based stories, students are guided to discuss the mission of foreign language majors in international cultural communication, so as to improve their deficiencies in expressing local culture and weak awareness of cultural communication.

2.2 Immersive Cultivation of Red Responsibility Awareness for Youth Development - A Case Study of Your College Years

As an argumentative essay focusing on college students' growth, value choices and career planning, this text is dominated by Western individual-oriented ideas and lacks positive guidance on patriotism and collective dedication. Combined with the university's red educational tradition and inspiring stories of outstanding students serving the country, this study builds a full-process immersive classroom.

In the situational immersion stage, materials including historical records in the university history museum, students' red culture promotion and public welfare activities are adopted to create a classroom atmosphere of "striving in youth and taking responsibility through hard work", narrowing the distance between red spirits and contemporary college students.

In the text intensive reading stage, we compare Western individual-oriented growth concepts with the

university's educational orientation of "diligent learning, earnest practice and dedication to the country", guiding students to establish correct values. In the language output stage, hierarchical tasks are arranged: basic tasks include text imitation and English retelling of school-based red stories; advanced tasks include mini English speeches themed My College Years, My Red Mission, where students plan their personal development by learning from role models.

Oral and writing assignments are adopted to realize value sublimation. Students are encouraged to integrate academic development and professional growth with red culture inheritance, social services and national missions. This practice alleviates the confusion of values among young students and realizes the in-depth integration of textbook teaching and red cultural education.

3. Expansion of Diversified Scenarios: Constructing an Integrated On-campus and Off-campus Educational Loop

Breaking the limitations of single classroom teaching, this study builds a four-dimensional immersive education space covering in-class, on-campus, off-campus and online scenarios. In on-campus practice, students visit the university history museum and red cultural corridors to learn about the university's red history and receive training in bilingual explanation of red stories. In off-campus research activities, students visit red memorial halls in Shaanxi Province to practice introducing red culture and disseminating red spirits internationally. Online platforms such as Xuxitong and MOOC are used to push supporting bilingual red materials and discussion topics for after-class consolidation. Eventually, a complete educational chain of "classroom teaching-on-site experience-after-class reinforcement-practical output" is formed.

4. Empowerment via Diversified Evaluation: Establishing a Process-oriented Assessment System for Teaching Reform

To adapt to immersive teaching, the course assessment mechanism is restructured into a diversified evaluation system covering language proficiency, classroom performance, ideological and political output and extracurricular practical achievements. Students' bilingual recitation of red culture, classroom critical thinking, thematic speeches, ideological and political essays, competition participation and public welfare activities are all included in the assessment. This reform abandons the score-only evaluation model, motivates students to participate in immersive ideological and political learning actively, and ensures the effective implementation of teaching reform.

V. Summary of Achievements and Innovations in Teaching Reform

Through systematic classroom practice, the teaching reform of integrating school-based red resources into

immersive teaching of Comprehensive English has achieved phased outcomes. This section summarizes the practical effects, core innovations, existing deficiencies and future development directions of the reform.

1. Practical Achievements

This reform effectively solves the prominent problems of material homogenization, superficial integration and poor implementation in curriculum-based ideological and political education of Comprehensive English, and establishes an immersive education mode with theme adaptation, in-depth experience and actionable tasks. In terms of teaching, it realizes the seamless combination of language training and value guidance and thoroughly resolves the disconnection between professional teaching and ideological and political education. In terms of student development, students' ability in text analysis, bilingual expression and cross-cultural critical thinking is significantly improved, along with enhanced cultural confidence and sense of social responsibility. In terms of educational practice, a distinctive ideological and political education paradigm suitable for private colleges is formed, which greatly promotes the overall educational quality of basic English courses.

2. Core Innovations

First is content innovation. The precise integration of school-based red resources and textbook themes breaks the limitations of indiscriminate use of conventional materials and makes ideological and political education more distinctive and targeted. Second is mode innovation. A textbook-linked four-dimensional immersive teaching mode is constructed. Task-driven learning and on-site experience replace traditional indoctrination, making the teaching mode highly operable and replicable. Third is talent cultivation innovation. Based on the learning characteristics of students in private colleges, this reform corrects cross-cultural cognitive bias and realizes the in-depth unification of language education, cultural education and red culture education.

3. Deficiencies and Prospects

This reform still has some shortcomings. The library of high-quality bilingual red materials needs continuous updating, and the design of hierarchical immersive tasks requires further refinement. In follow-up research, we will continue to explore textbook themes, improve the system of school-based red teaching resources and optimize hierarchical immersive teaching design. We aim to build a featured reform system of "one textbook article, one high-quality teaching case", and provide a promotable practical paradigm for the normalized and high-quality development of curriculum-based ideological and political education in Comprehensive English for private colleges and universities.

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Ethical Guidelines

Chapter 1. General Rules

Article 1 (Purpose)

The purpose of the following rules is to present the basic ethical principles and direction needed to ensure the research ethics of editorial board members, peer-reviewers. and authors who examine or submit articles to the Journal of Advanced Academic Research and Studies (JAARS). NLBA Eurasian Institute publishes these rules to present the procedure and actions for research misconduct.

Article 2 (Object of the Study and Scope)

The research is subject to sanction, investigation and judgement to determine whether research ethics were followed when any of the following occurs:

i. The study was submitted to the Journal of Advanced Academic Research and Studies,
ii. The study was confirmed to be published in the Journal of Advanced Academic Research and Studies,
iii. The study has already been published in the Journal of Advanced Academic Research and Studies.

Chapter 2. Honesty and Social Responsibility of the Research

Section 1. Honesty in the Research

Article 3 (Honesty of the Research)

a. Researchers must conduct every research behavior (proposing research, researching, reporting and presenting research, investigating and judging) honestly and sincerely.
b. Researchers must describe the content and the importance of the study clearly and objectively, and must not delete or add results arbitrarily.
c. Researchers must carry out every study without any bias or prejudgment.

Article 4 (Ethics for Researchers)

a. Researchers must not commit research misconduct during any part of the research process.
b. A study must not be submitted if it has been published in other journals, and researchers must not request review of the study to different journals at the same time. However, a thesis or a paper presented in a conference as a working paper shall be exceptions.

Article 5 (The Record, Storage, and Report of Research Data and its Disclosure)

a. All research information must be clearly and precisely recorded, processed, and preserved so that it may be accurately analyzed and confirmed.
b. Researchers shall use proper research methods and statistics, and those shall be available to the public if necessary.

Section 2. Fairness in Researchers'Contributions

Article 6 (Collaborative Research)

Researchers must make the roles and contributions of all contributors clear if they conduct a joint study with other researchers, and shall take full responsibility for establishing this. Prior to conducting research, mutual agreement and understanding shall be made with regard to property rights and ownership issues, research director selection, authorship and the standard of order. the data collection method. individual role in the study. and expectations and objectives of the study.

Article 7 (Responsibility and Duty, Order of Authors)

a.Researchers are responsible only for the study that they carry out or are involved in as an author, and are recognized for that achievement.

b.Authors must accept requests for proof of their contributions.

c.The order of authors must accurately reflect the academic contribution by each author to the research contents or results, regardless of the authors'relative positions.

Article 8 (Corresponding Author)

a.Corresponding authors shall take overall responsibility for the results of the study and proofs.

b.Corresponding authors shall have the burden of proof with respect to the order of the author and co- author(s).

Article 9 (Affiliation of Author)

When indicating the affiliation of author(s), the author's current status in principle shall be given. However, it is possible to follow the customs of the author's academic field if their field of affiliation follows a different custom.

Chapter 3. Research Misconduct and Unethical Research Conduct

Section 1. Methods and Principles of Citation

Article 10 (Methods and Principles of Citation)

a.The author may cite a part of other researchers'studies in his/her research paper using their original text, or the translated version by introducing, referring to or making a comment on the original.

b.The author shall take all possible measures to ensure the accuracy in stating sources and making the list of references.The author must confirm all elements of a citation(author's name, number/volume of the journal, page and published year)not depending on the secondary source but solely on the original work. However, when inevitable, the author can include with acknowledgment.

c.The author must cite in a reasonable manner and use the good faith principle, so that uncited works can be clearly distinguished from cited works.

d.The author must cite published works only. However, in the case of citing unpublished academic materials that have been acquired through personal contact, paper review or proposal review, the author must acquire consent from the relevant researcher(S).

e.When the author introduces ideas or theories in his/her work that have been presented in another study, the source must be stated.

f. The author must distinguish his/her own ideas from cited materials when borrowing substantive parts from one source, so readers can clearly recognize the author's work.
g. If a reference has a significant impact on the direction of the research or can help the reader understand the contents, the author must include all such works on the list of references, except in such cases where the relevant research can theoretically and empirically be inferred.

Article 11 (Method of General Knowledge Citation)

a. If the author uses someone else's idea or a fact provided by them, the source should be provided.However. general knowledge or material that general readers will already recognize shall be an exception.
b. If the author is unsure whether any concept or fact qualifies as general knowledge, it is recommended to cite the original text.

Section 2. Research Misconduct

Article 12 (Definition of Research Misconduct)

"Research misconduct" refers to any instances of forgery, falsifcation, plagiarism, failure to give proper credit to co-authors or redundant publications that may emerge during the entire research process (research proposal, conduct of research, report and presentation of research, investigation and judgement).

a. "Forgery" refers to the act of presenting non-existent data or research results.
b. "Falsification" refers to the acts which artificially manipulate research processes, randomly modify, or delete data resulting in distorted research content or research results. (Here. "deletion" refers to the act of using only favorable data and intentionally excluding the data that might cause unexpected or undesired results.).
c. "Fabrication" refers to the act of intentionally creating a document or record that does not exist.
d. "Plagiarism" refers to the acts which pirate other's work, ideas or research, using ideas, hypotheses, theories, research contents, or research results without justifiable approvals, citation, or quotations, as if those were his/her own.
    i. "Idea Plagiarism" refers to the act of using someone else's ideas (explanations, theories, conclusions, hypothesis and metaphors)in full, substantial proportions or in a fragmented revised form without giving appropriate credit to the originator of the words and ideas. Authors have moral responsibility to indicate the source of ideas through a footnote or a reference. Authors must furthermore not steal other's ideas which are known through peer review of research proposals and submitted articles.
    ii. "Text plagiarism" refers to the act of copying text from another's work without clarifying the original author.
    iii. "Mosaic plagiarism" refers to the act of combining a part of a text with a few words added, inserted or replaced with synonyms, and others without clarifying the source or the original author.
e. "Redundant Publication" refers to the act of publishing a paper that is identical or highly similar text to one that has already been published in the past in another academic journal without alerting the editors or readers of the fact that this work was previously published elsewhere. If the contents of the paper are almost the same as his/her previously published paper, the later paper is regarded as a redundant publication even if the text has a different point of view or perspective, or including a diferent analysis based on the same data that has been previously published. In the case in which the author would like to publish a paper using a previously published paper, he/she must acquire permission from the chairperson after providing the information about the publication and double-checking whether it is a redundant publication or duplication of a publication.

f.“Self-plagiarism” refers to the act of using images, graphs or part of one's own research already published without identifying the source, and it is regarded as redundant publication.

g.“Failing to give proper credit to co-authors” refers to the act of failing to list those who have contributed academically to the research process or results as a co-author or conversely to the act of listing those who have not made any academic contribution as co-authors.

Article 13 (Research Misconduct and Copyright Infringement)

a.Generally, the copyright of all papers and instances published through NLBA Eurasian Institute is assigned to the author. However, if they are utilized for public objects like education, NLBA Eurasian Institute owns the right of use.

b.The full term of copyright is assigned to the academic journal publisher in all papers published in academic journals.

c.It should be noted that “Redundant Publication” may cause copyright violation.

d.It should be noted that the author should use proper quotation marks when widely citing text from copyrighted sources, and even if the text is properly cited, it could infringe copyright.

Section 3. Inappropriate Writing

Article 14 (Inappropriate Writing)

The following are regarded as inappropriate writing:

i.Inappropriate citations
ii.Distorting references
iii.The act of depending on abstracts when citing the published paper
iv.Citing papers that the author did not read or understand
v.The act of partially citing despite intensively borrowing from a single source
vi.The act of reusing text

Article 15 (Prohibition of Distortion of References)

a.References must only include documents that are directly related to the article content. Unrelated references for the purpose of intentionally manipulating the citation index of the paper or academic journal should not be included.

b.As a moral responsibility, the author should not only cite the references which will be favorable to his/her data or theory, but also cite references which may contrast with his/her point of view.

Article 16 (Reuse of Text)

a.“Reuse of Text” refers to the act of re-using a part of the manuscript that he/she has used in a previous paper.

b.Text reuse is an act contradictory to ethical writing, so the author must avoid re-using text already used. In case of unavoidable text re-use, the author should not violate copyright infringement by following standardized reference practices including the use of quotation marks or proper indication.

Chapter 4. Ethical Rule Enforcement

Section 1. Research Ethics Committee

Article 17 (Ethical Rule Pledge)

New members who have enrolled in the research pool of NLBA Eurasian Institute shall acquaint and pledge to abide by these research ethics when submitting to the "Journal of Advanced Academic Research and Studies" and conducting research. Current members shall be regarded as having pledged to abide by these research ethics when initiated.

Article 18 (The Announcement of Violation of Ethical Rule)

If a member learns that another member has violated any ethical rules, he/she should endeavor to correct the mistake by helping make him/her be aware of the rules. However, if he/she does not correct the violation or the ethical violation is obviously unveiled, the member must report to the committee immediately.

Article 19 (Organization of the Research Ethics Committee)

NLBA Eurasian Institute shall establish a Research Ethics Committee (hereinafter referred to as the "Committee") mandated to deliberate on matters falling under each of the following sub-paragraphs:

a.Matters concerning establishment and revision of these rules.

b.Matters concerning acceptance and handling of misconduct.

c.Matters concerning beginning actual investigation and decision, approval, and re-deliberation of investigation results.

d.Matters concerning protection of informant and examinee.

e.Matters concerning investigation of research integrity, handling of investigation results and follow up measures.

f.All the matters concerning operations of other committees.

Article 20 (Organization of Research Ethics Committee)

a.The Committee shall consist of one chairperson and members of no less than five but no more than nine persons.

b.The chairperson and the members shall be appointed by the chairman of NLBA Eurasian Institute.

c.The members of this committee shall hold a one year term and they may be reappointed.

d.The chairperson and the members of this committee shall maintain independence and confidentiality with respect to the details relating to deliberations and decisions.

Article 21 (Organization of Research Ethics Committee)

a.The chairperson of the committee shall convene any meeting and preside over such meetings.

b.The committee's meetings shall open with the attendance of a majority of the total members including the chairperson and resolve with the concurrent vote of a majority of those present.

c.No meeting of the committee shall be open to the public. [The meeting shall not be open to the public in principle, but whenever deemed necessary, the committee can ask the related party and hear their opinions.]

d.Whenever deemed necessary, the committee can ask the related party and hear their opinions.

e.Any member who is involved in the research subiect to an investigation will not be permitted to attend the concerned meeting due to a conflict of interest.

Article 22 (Authorities and Responsibilities of the Committee)

a. The committee can summon for attendance and data submission any informants, examinees, witnesses and testifiers, in the process of an investigation.

b. When the examinee refuses to attend the meeting or data submission without a justifiable reason, it could be presumed as an indication that he/she has acknowledged the allegations.

c. The committee can take substantial measures to prevent any loss, damage, concealment or falsification of research records or evidence.

d. The committee members should comply with confidentiality concerning deliberation-related matters.

Section 2. Research Integrity Investigation

Article 23 (Reporting a Fraudulent Act)

An informant can report a fraudulent act using any means available when reporting using their real name. However, when reporting anonymously, he/she must submit the title of the paper, and the evidence and detail of the misconduct in writing or by e-mail.

Article 24 (Confidentiality and Protection of Rights of Examinee and Informant)

a. The committee should not reveal the personal information of the informant unless it is necessary.

b. The committee must take action to protect the informant if the informant experiences illegitimate pressure or threats due to reporting the fraudulent act.

c. Until the investigation of a fraudulent act is completed, the committee must be careful not to infringe upon the rights or reputation of the examinee. If the person turns out to be innocent, the committee must make efforts to recover the reputation of the person.

d. The identity of the informant, investigators, testifiers, and consultants should not be disclosed.

e. All facts relating to research ethics and authenticity investigations must remain confidential and the people involved in the investigation must not reveal any information obtained during the process. If there is a need to disclose related information. the committee can vote to make such a decision.

Article 25 (Raising an Objection and Protection of Defense Right)

a. The committee must ensure the informant and examinee have equal rights and opportunities to state their opinions and obiections. Such procedures must be informed to them beforehand.

b. An examinee or informant may require the avoidance of deliberation and decision after explanation in case he/she expects an unfair decision.

c. The research ethics commitee must give the examinee a chance to submit their opinion and clarify any fact revealed during the first report or any additional report.

Article 26 (Preliminary Investigation of Research Misconduct)

a. The committee must investigate the presence of misconduct if there is a considerable doubt about legitimate conduct or detailed information about misconduct.

b. The chairperson can officially carry out the investigation (hereinafter referred to as the “preliminary investigation") which is a procedure to decide whether the suspected misconduct should be investigated after consultation with the chairman of NLBA Eurasian Institute.

c.The committee shall form the preliminary investigation committee consisting of no more than five members within 30 days of reporting.
d.The committee shall inform the informant and examinee of the formation of such a committee, and give the examinee a chance to clarify within 30 days.
e.A preliminary investigation is initiated within 30 days of the formation of the preliminary investigation committee and the investigation should be completed within 30 days of the start of the investigation except in unavoidable circumstances.
f.If it has been more than five years since a misconduct was committed, the reporting is not handled in principle even if the reporting is accepted.
g.Through preliminary investigation, the following is reviewed:
  i.Whether the reported instance qualifies as research misconduct
  ii.Whether the reporting is specific and clear enough to lead to an actual investigation
  ii.Whether more than five years has passed since the reported misconduct was committed

Article 27 (Report and Notice of the Preliminary Investigation Result)
a.The result of the preliminary investigation shall be notified to the informant and examinee within ten days of the committee's decision, and reported to the chairman of NLBA Eurasian Institute.
b.The result report of the preliminary investigation must include the following:
  i.Specific information regarding the alleged misconduct
  lii.Facts regarding the alleged misconduct
  iii.Grounding for decision on whether to conduct an actual investigation

Article 28 (Raising an Objection and Protection of Right of Defense)
a.The committee must ensure that the informant and examinee have equal rights and opportunities of opinion statement and objection. Such procedure must be informed beforehand.
b.The informant and examinee can make an objection within ten days from the day of being notified of the preliminary investigation.

Article 29 (Beginning and Duration of an Actual Investigation)
a.The actual investigation begins within 30 days after a positive result from a preliminary investigation. During the period, the actual investigation committee consisting of no more than nine persons (including the preliminary investigation committee) must be formed to conduct an actual investigation.
b.The actual investigation must be completed within 90 days from the beginning date.
c.If the investigation committee decides that it cannot be completed within the specified period, it can explain the reason to the committee and request a 30 day extension (one time only).

Article 30 (Formation of an Actual Investigation Committee)
a.An actual investigation committee is composed of no more than nine members.
b.Formation and duration of an actual investigation committee is determined by the committee. The chairperson of the actual investigation committee is elected among the actual investigation members.
c.The investigation committee shall include at least two members with specialized knowledge and experience in the relevant field.
d.A person who has a stake in the investigated matter must not be included in the actual investigation committee.

Article 31 (Request for Appearance and Document Submission)

a.The actual investigation committee can request the examinee, informant(S), and testifiers to appear for testimony and the examinee must comply.

b.The actual investigation committee can ask the examinee for submission of a document, and retain and store the relative research materials about the person involved in the misconduct after the approval of the head of the research organization in order to preserve evidence relating to the investigation.

Article 32 (Exclusion, Avoidance and Evasion)

a.The examinee or informant(s)can require exclusion by identifying the reason if there are reasons to believe that a committee member is unable to maintain fairness. When such request for exclusion is recognized, the member subiected to the request shall be excluded from the concerned investigation.

b.If the committee member is directly related to the corresponding matter, he/she shall be excluded from all deliberation. decisions and investigation of the matter.

c.The chairperson can suspend the qualification of a member who is related to the corresponding matter in connection with the corresponding investigation.

Article 33 (Investigation Report Submission)

The actual investigation committee must submit the result to the committee within the actual investigation period, and the result must include the following:

i.Specific details of the alleged misconduct
ii.Facts regarding the alleged misconduct
iii.Evidence, witness list and affidavits
iv.Investigation results
v.Other data useful for decisions

Article 34 (Decision)

a.The decision must be made within six months from the beginning of the preliminary investigation.

b.The committee shall make the decision confirming that the examinee committed research misconduct after reviewing the result report.

Section 3. Action after Investigation

Article 35 (Action in accordance with Investigation Result)

When a decision is made confirming the research misconduct, the committee can sanction the author with applicable punishment to each of following, or impose corresponding retribution.

i.The publication is postponed until the final decision of the research ethics committee is made even if the paper has been confimed to the author that it will be published.

ii.The publication of the paper to which the research misconduct is related is to be canceled and deleted from the article list of the journal even if the volume has already been published.

iii.The author found to have committed such misconduct is prohibited from submitting papers to the journal for three years, and these facts are made public on the homepage of the journal (http://www.nlbaeai.org).

iv. If there is an author found to have committed plagiarism or redundant publication, the editorial board stores the relevant investigation details for five years.
v. The chairperson of the organization with which the author(s) is affiliated is notified of the final decision.

Article 36 (Investigation Result Notification)
The chairperson of the committee shall immediately notify the related persons such as the informant and examinee of the commitee's decision regarding the investigation result in writing.

Article 37 (Investigation Result Notification)
a. If the informant or the examinee refuses the committee's decision, he/she must submit a re-deliberation request to the committee within 15 days from receipt of the result notice as prescribed in Article 37.
b. The committee must decide whether re-deliberation is necessary within 10 days of the receipt of the re-deliberation request.
c. The committee will decide there-deliberation procedure and method.

Article 38 (Follow-ups such as Recovery of Author's Honor)
If the results of the investigation confirm that no research misconduct has been identified, the committee must take follow-up steps to recover the reputation of the examinee.

Article 39 (Storing the Record and Confidentiality)
a. All records regarding the preliminary and actual investigation are stored for five years from the date of the investigation's conclusion.
b. All facts relating to research ethics and the investigation must remain confidential and the people involved in the investigation must not reveal any information obtained during the process. If there is a need to disclose investigation information, the committee can vote to make such decision.

Article 40 (Etc.)
Matters that are not determined by these rules are to be decided by the editorial board.

Article 41 (Date of Effectiveness)
These regulations shall be effective as of January 1, 2024.

Editorial Regulations

Journal of Advanced Academic Research and Studies (JAARS)

Chapter 1. General Roles

Article 1 (Purpose)

The purpose of the following rules is to prescribe matters regarding the editorial work and standards for the Journal of Advanced Academic Research and Studies (hereinafter referred to as "JAARS") published by NLBA Eurasian Institute.

Chapter 2. Editorial Committee

Article 2 (Editorial Committee)

The editorial committee (hereinafter referred to as "committee") is established in order to accomplish the purpose of Article 1.

Article 3 (Formation of Editorial Committee)

a. The editorial members shall be appointed by the chairman of NLBA Eurasian Institute, and the committee shall consist of no more than 50 members.
b. The chief editor shall be appointed by the chairman of NLBA Eurasian Institute and is in charge of all editing.
c. The editorial committee shall be composed of two chief editors, one editor, and one managing editor. The editors are appointed by the chairman of NLBA Eurasian Institute among editorial members.
d. The term for the chief editor is three years, and the term for the editorial members is two years, and editorial members may be reappointed.
e. This committee makes decisions with a majority attendance of the members and a majority agreement of the members present.

Article 4 (Qualification of Editorial Members)

The editorial members shall meet the following qualifications:

i. Being at least an associate professor in a domestic/international university or a person equally qualified
ii. Someone who studies in an area within the JAARS's specialty and who has published at least 3 articles in a journal (or l article in an SCI, SSCI and/or SCOPUS indexed journal) within the last three years

Article 5 (Responsibilities and Obligations of Editorial Members)

a. Editorial members are fully responsible for the decision to publish JAARS-submitted papers, confirm their integrity during the deliberation process, and observe candidates during the editing process.
b. Editorial members should respect the author's person and independence as a scholar, and make the process of the evaluation of the research paper public if there is a request.
c. Editorial members should handle submitted papers only based on the quality and submission guidelines, not based on the author's gender, age, or affiliation.

d.Editorial members should request a reviewer with specialized knowledge and fair evaluation ability in the relevant field to evaluate submitted papers. However, if evaluations of the same paper are remarkably different, editorial members can acquire advice from an expert in the relevant field.
e.Editorial members should not disclose the matters of the author and the details of the paper until a decision is made pertaining to the publication of the submitted paper.

Chapter 3. Paper Submission and Peer Review Committee

Article 6 (Qualification of Submission and Submission)

a.All the paper submitters must be members registered with JAARS.
b.All papers should be submitted through the JAARS's online submission system (http://www.nlbaeai.org/) and Email:edubscon@outlook.com, and can be submitted at any time. English-language papers from authors outside of the United States of America may also be submitted using e-mail.

Article 7 (Formation of Peer Review Committee)

a.Peer reviewers are appointed by the chief editor, and selected based on the field of the reviewer's expertise. (According to circumstances, a peer reviewer who is not a member of JAARS may be appointed.)
b.Editorial members for each content subject such as international economy, international management, or practice of trade can also serve as peer reviewers.
c.The chief editor represents editorial members, handles all the matters relating to review, and reports the results of peer review to the committee.
d.The managing editor is in charge of the procedure relating to review.
e.The classification and selection of submitted papers is decided by the chief editor and the managing editor, and they report it to the committee.

Article 8 (Qualification of Peer Reviewers)

Peer reviewers shall have the following qualifications:

i.Being at least an associate professor in a domestic/international university, or a person who is as equally specialized as the person above.
ii.Someone who studies an area within the JAARS's specialty and has published at least 3 articles in a iournal (or 1 article in an SCI, SSCI and/or SCOPUS indexed journal) within the last three years.
ii.Someone who presents a paper, chairs a session or serves as a discussant at an academic conference at the same level of the institution, or has served as a reviewer of a study which has been indexed in a domestic or international journal within the last three years.

Article 9 (Responsibility and Duty of Peer Reviewers)

a.Peer reviewers should evaluate papers and report the results of the evaluation to the committee within the time period set by the committee. However, if he/she believes that they are not appropriately qualified to review the paper, they should notify the committee without delay.
b.Peer reviewers should respect the author's person and independence as a scholar. Peer reviewers may request for revision of the paper with detailed explanations if needed in the evaluation of the research paper.

c.Papers are reviewed confidentially using a method in which the name and affiliation of the author is confidential to the public. Showing the paper and/or discussing the contents of the paper with a third party is not desirable unless a consultation is needed for purposes of review.

Article 10 (Unethical Behavior in the Review Process)

a.Peer reviewers must not manipulate either directly or indirectly the related research-specific information contained in the research proposal or review process without the consent of the original author.

b.Peer reviewers must be careful of the following since it could be regarded as unethical research practices in the review process:

i.The act of handing over are quested paper to students or a third party

ii.The act of discussing the details of a paper with colleagues

ii.The act of obtaining a copy of the requested material without shredding it after review

iv.The act of disgracing the honor of others or fabricating a personal attack in the review process

v.The act of reviewing and evaluating a research paper without reading it

Article 11 (Personal and Intellectual Conflict)

a.Peer reviewers must fairly evaluate using an objective standard regardless of personal academic conviction.

b.Peer reviewers must avoid personal preiudice when reviewing a paper. If there is a conflict of interest including personal confict, it must be notified to the committee.

c.Peer reviewers must not propose rejecting a paper due to a confict in interpretation or with the point of view of the reviewer.

Chapter 4. Principle and Process of Paper Review

Article 12 (Papers for Peer-review)

Review shall proceed based on the writing and submission guidelines. If the submitted paper substantially diverges from the writing and submission guidelines, the paper may not be reviewed.

Article 13 (Request for Review and Review Fee)

a.The chief editor discusses the selection of reviewers with editorial members and selects two reviewers for each paper after submitted papers pass the eligibility test.

b.The chief editor immediately requests the two selected reviewers to review the relevant submitted paper.

c.Papers are reviewed by confidential method in which the name and affiliation of the author is confidential to the reviewer, the name of the reviewer is confidential to the author.

d.The chief editor requests a review after deleting the name and the affiliation of the author from the submitted paper, so that the reviewer cannot obtain the identity of the author.

e.A review fee shall be paid to the reviewer.

Article 14 (Review of Paper and Decision)

a.Reviewers shall submit a decision report via the JAARS's online submission system (http://www.nlbaeai.org/) and Email:edubscon@outlook.com within two weeks after they are asked to review a paper.

b.The reviewer shall decide whether the paper should be published based on the following standard. However, if the paper receives less than 30 points in the suitability and creativity of the topic, it will not be published.

i.The suitability of the topic(20 points)

ii.The creativity of the topic (20 points)

iii.The validity of the research analysis (20 points)

iv.The organization and logic development of the paper (20 points)

v.The contribution of the result (10 points)

vi.The expression of the sentence and the requirement of editing (10 points)

The reviewer must give one of the following four possible marks within the two week period: A (90~100 points, acceptance), B (80~89 points,acceptance after minor revisions), C (70~79 points,re-review after revision), F (Rejection), and write an overall review comment concerning the revision and supplementation of the paper.

c.In an instance where the reviewer does not finish the review within the two week period, the chief editor can nominate a new reviewer.

Article 15 (Correction of Papers according to the Editing Guideline)

a.Before holding an editorial committee meeting, the chief editor shall request editorial staff correct those papers that receive“acceptance”or “acceptance after minor revisions”, using the journal's paper editing guidelines. However, if there is a paper that receives “acceptance” after the editorial committee meeting, the chief editor will request the editorial staff to correct the paper after the meeting.

b.The chief editor shall notify each author of the result of his or her paper review after receiving the corrected version of the paper from the editorial staff. However, papers which receive a “rejection” shall not be notified of their result.

Article 16 (Decision of Paper and Principle of Editing)

a.The chief editor shall call an editorial board meeting and make publication decisions after receiving finished papers from reviewers.

b.The editorial board will make decisions to publish based on the following chart. The editorial board should respect

Results of 2 peer-reviews	Overall evaluation(average)	Decision to publish
AA	A	Acceptance
AB, AC, BB	B	Acceptance after minor revisions
AD, BC, BD, CC	C	Re-evaluation after revision
CD. DD	F	Rejection

reviewers'decisions on relevant papers, but can make decisions based on the editorial policy of the JAARS.

c.The paper that is awarded “acceptance” should receive a “B” or higher from reviewers or the level of overall evaluation (average) should be“B"or higher, and the paper that is awarded “acceptance after minor revisions” should have its satisfactory revisions and/or developments confirmed by the initial reviewer after re-submission.

d.The editorial board shall confirm that papers in consideration for publication are suitable to the writing and submission guideline of JAARS, look through detailed matters, and decide particular issue policies such as the number of papers and the order of them.

e.In the case where a paper was presented or submitted for review previously, it cannot be published in JAARS.

f.In the case where an author submits two or more papers for consideration, only one paper that receives "acceptance"shall be published in the same issue.

Article 17 (Notification of the Result)

a.The chief editor shall notify an author of the review result after the initial evaluation or re-evaluation is finished, but can request the author to revise and develop the paper based on the evaluation report. If the editorial board makes a final decision on publication, the author should be notified.

b.The author must be notified of the review result within one month from the day of receiving the paper or revised paper (or the deadline of submission). If it is impossible to notify the author within one month, the reason and the due date of notification must be notified to the author.

c.Unless there is a specific reason, the author must submit a file including a response to the evaluation report, revision to and/or development of the paper to the chief editor after editing the paper within the period the editorial board suggests when he/she is asked to edit the paper. The changed details must be confirmed by the editorial board as well. In case the author does not submit the revision and development to the editorial board within the period, it shall be automatically postponed until this process is finished.

d.A paper that receives a "C" in the overall evaluation (average) shall be re-evaluated after the chief editor sends the revised article and revision report to the initial reviewer(s).

e.In cases where the evaluations of the same paper are remarkably different among reviewers, the chief editor can nominate a third reviewer and request a re-evaluation. In this case, the chief editor shall send the evaluation report to three different reviewers and have them submit the final evaluation report based on the details of the paper, and the paper can be published after revision only if the final mark awarded the revised paper is higher than a "B" in the overall evaluation.

f.The chief editor will issue an acceptance letter for the papers confirmed to be published.

Article 18 (Proofreading and Editing)

a.The chief editor shall request domestic/international members to proofread and edit papers confirmed to be published.

b.Proofreading and editing members shall be recommended by the chief editor and appointed by the chairman of NLBA Eurasian Institute.

c.The chief editor shall send the results of proofreading and editing to the original author and request the author to edit the paper appropriately.

d.The author, unless there is a specific reason, must submit the revised paper and revision report to the chief editor after editing the paper within the period the editorial board suggests when he/she is asked to edit the paper. The changed details must be confirmed by the editorial board as well.

e.Even if a paper is confirmed to be published, it will be rejected if it has not fulfilled the editing procedure following the result of proofreading and editing, or has been found to have committed research misconduct of any kind.

f.If an editing member finds plagiarism, inadequate form, or low quality in the process of editing a paper that the journal has confirmed to be published, he/she must notify the chief editor. and can suggest proper responses to the findings. g. The chief editor suggests whether to avoid publication of a paper or have the author re-submit the paper after revision and development according to the guidelines stipulated in Article 5. In the case of a paper requested to be revised and developed, publication can be postponed based on the degree of completion and the schedule of revision and development.

Chapter 5. Editing and Publication

Article 19 (Editing and the Date of Publication)
JAARS is published six times a year in principle. However, if there is a reason such as the number of submitted papers, the committee can increase or decrease the number of issues.

Article 20 (Notification of Editing)
a.The chief editor shall acquire publication consent from the authors of the confirmed papers before printing.
b.The chief editor shall report to the chairman of NLBA Eurasian Institute when the editorial process following editorial policy is completed, and shall further follow the outlined process for printing and editing.

Article 21 (Sanction on Plagiarism and Redundant Publication)
If the ethics committee finds that a submitted paper or a published paper contains plagiarism or was published in another journal, the following sanctions will be taken:
a.Distributing after deleting the relevant paper in the journal if the journal has not been distributed yet,
b.Notification of paper deletion on the website if it the related issue has already been distributed,
c.Notification of the plagiarism or redundant publication of the relevant paper on the website,
d.Banning the relevant author from submitting papers to all journals published by JAARS for two years from the date when plagiarism and redundant publication is found and from presenting in conference,
e.Notifying the author's affiliated organization or institution of the fact of the plagiarism or the redundant publication, if necessary.

Article 22 (Transfer of the Rights of Publication, Duplication, Public Transmission, and Distribution)
a.The right of publication of the paper is owned by NLBA Eurasian Institute unless specified.
b.The author(s) shall transfer the right of duplication, public transmission, and publication to NLBA Eurasian Institute.If they do not agree, the relevant paper cannot be published in JAARS.

Article 23 (Notification of Paper on Homepage)
Papers published in JAARS shall be publicly notified on the JAARS homepage (http://www.nlbaeai.org/)

Article 24 (Etc.)
The matters that are not decided in these rules are either subject to the submission guidelines or decided by the editorial board.

Article 25 (Date of Effectiveness)
These regulations shall be effective as of January 1, 2024.

Author's Check List

Journal of Advanced Academic Research and Economics (JAARS)

Title of Manuscript: _____

Manuscript ID: _____

Please check ☑ to confirm fulfllment of instructions below before submitting your manuscript.

1.General guidelines

□ The submission contains an original manuscript, a checklist, and a copyright transfer agreement.
□ The manuscript follows the journal template, using MS Word.
□ The manuscript consists of a title page, abstract, keywords, JEL Classifications, acknowledgement (if any), main text, references, appendix (if any), tables and figures.
□ The pages are numbered consecutively beginning with the title page.

2.Title page

□ The manuscript consists of title, author(s)name(s), and affliation(s).
□ The lower area of the title page includes the name(s)of the author(s)and e-mail of the corresponding author only.

3.Abstract, Keywords and JEL classifications

□ The Abstract is less than 250 words for an original article.
□ Includes no more than six keywords.
□ Includes no more than five JEL classifications.

4.Main text

□ Subtitles are ordered according to the journal template.
□ All figures and tables are cited in numerical order as they are first mentioned in the text.
□ All figures and tables are referenced within the text.

5.Tables and figures

□ The titles of figures and tables are set flush left above them, capitalizing the first letter of each word in these titles except for prepositions and articles.
□ Vertical lines are avoided in tables.
□ Pictures or photos are supplied in high resolution (minimum 300 dpi) .
□ Pictures or photos are supplied at a reasonably legible size for printing if they may be affected by resizing in the printing process.

6.References

□ References follow KITRI style.
□ Each entry in the reference list is cited in the main text.
□ All references are listed in alphabetical order followed by the year published.
□ The title of books and journals is expressed in italics.
□ Complete references are included with the full title of the article and up to six author names. Where there are seven or more authors,they are identified as "et al."
□ Journal articles have been double-checked as to whether the author name, (published year), title, joumal name, volume (issue number) and pages are correct.
□ Books have been double-checked as to whether the author name, (published year), title of book (editions, if any), place of publication, publisher's name, and pages are correct.

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NLBA Eurasian Institute

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All authors of this manuscript must agree to the following:

1. All authors certify that the manuscript does not violate any copyright and confirm its originality.

2. All authors have made an actual and intellectual contribution to this manuscript and hold responsibility for its contents.

3. This manuscript has not been published or will not be submitted to another journal for publication.

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6. If each author's signature does not appear below, the signing author(s)represent that they sign this Agreement as authorized agents for and on behalf of all the manuscript authors, and that this Agreement and authorization is made on behalf of all the authors.

In order for my manuscript to be accepted for publication in the Journal of Advanced Academic Research and Economics (JAARS), I hereby assign and transfer to the NLBA Eurasian Institute all rights, title, and interest in and the copyright in the manuscript, entitled.

Date:

Corresponding Author: Signature:

*Submission:You must submit a scanned file (file type: jpg, gif, or pdf) of this signed confirmation and final manuscript file (file type:MS Word) online after the manuscript has been accepted for publication.

Call for Papers

Journal of Advanced Academic Research and Economics (JAARS)

The Journal of Advanced Academic Research and Economics (JAARS) is the official publication of the NLBA Eurasian Institute publishes manuscripts of significant interest that contribute to the theoretical and practical basis of business, economics, and international trade studies. JAARS's broad scope and editorial polices create accessible, thought-provoking content for the general academic community of business, economics, and international trade.The goal of JAARS is to publish insightful, innovative and impactful research on business, economics, and international trade. JAARS is multidisciplinary in scope and interdisciplinary in content and methodology.

Subject Coverage

JAARS is an interdisciplinary journal that welcomes submissions from scholars in business, economics, and trade disciplines and from other disciplines (e.g,political science) if the manuscripts fall within the JAARS domain statement. Papers are especially welcome which combine and integrate theories and concepts that are taken from or that can be traced to origins in different disciplines.

JAARS is a methodologically pluralistic journal.Quantitative and qualitative research methodologies are both encouraged, as long as the studies are methodologically rigorous.Conceptual and theory-development papers, empirical hypothesis-testing papers, and case-based studies are all welcome. Mathematical modeling papers are welcome if the modeling is appropriate and the intuition explained carefully.

Notes for Prospective Authors

Submitted papers should not have been previously published nor be currently under consideration for publication elsewhere. All papers are referred through a peer review process.

All manuscripts should follow the submission guidelines on the JAARS homepage ((http://www.nlbaeai.org/).

JAARS operates an on-line submission system. Manuscripts should be submitted to the on-line submission system at http://www.nlbaeai.org following all prompts on the screen.
There is no firm submission deadline for papers and the submitted articles will be evaluated on a rolling basis.
Any queries should be sent to the Editor of JAARS at the following address:edubscon@outlook.com

Guidelines for Authors (In Brief)
[Journal of Advanced Academic Research and Studies (JAARS)]

How to submit the paper

The authors submit their manuscripts (in MS Word Format) to the on-line submission system at http://www.nlbaeai.org

Blind Review Policy

The journal follows double blind peer review policy. The paper is sent to two reviewers appropriately qualified experts in the field selected by the editor to review the paper in the light of journal's guidelines and features of a quality research paper. For papers which require changes, the same reviewers will be used to ensure that the quality of the revised paper is acceptable.

Manuscript Preparation Guidelines

The author(s) must follow the Manuscript Preparation Guidelines in preparing the manuscript before submission.

1. Language

The language of the manuscript must be English (American English, e.g. "color" instead of "colour").

2. Length of Paper

The length of the paper should not exceed 30 pages (Times New Roman, 12 Font) excluding tables, figures, references and appendices (if any). Articles should be typed in double-space (including footnotes and references) on one side of the paper only (preferably Letter size) with 1 inch margin. Authors are urged to write as concisely as possible, but not at the expense of clarity.

3. Title Page

The title page should include: (i) A concise and informative title, (ii) The name(s) of the author(s), (iii) The affiliation(s) and address(es) of the author(s), and (iv) The e-mail address, telephone and fax numbers of the corresponding author.

4. Abstract

Please provide an abstract of 200 to 250 words. The abstract should not contain any undefined abbreviations or unspecified references. The content of abstract must include Purpose, Design/Methodology/Approach, Findings, and Research Implications.

5. Keywords and JEL Classification Code

Please provide 4 to 6 keywords which can be used for indexing purposes.

6. Acknowledgement

The author may use acknowledgement section in the title page of the paper (if any).

7. Subdivision of the article

Divide your article into clearly defined and numbered sections. Sections should be numbered in Roman numerals (e.g., I, II). Subsections should be numbered using the decimal system (e.g., 1., 1.1., 1.1.1., 1.1.2., 1.2., …, 2., 2.1.). The abstract is not included in section numbering.

8. Table and Figure

Present tables and figures within the article, not at the end of the article. Please note that the article will be published in black and white (print), although online version will contain the colorful figures (if any). However, the color print will be available in extreme cases as per the request of the author.

9. References

Author(s) should follow the latest edition of KITRI style in referencing. Please visit www.nlbaeai.org to learn more about KITRI style.

■ **Citations in the text**

Please ensure that every reference cited in the text is also present in the reference list (and vice versa).

■ **Reference List**

References should be arranged first alphabetically and then further sorted chronologically if necessary.

Guidelines for Authors (In Brief)
[Journal of Advanced Academic Research and Studies (JAARS)]

■ **Examples:**

Reference to a journal publication:

Wegener, D. T., J. F. Dollan and Soon-Hwan Jeon (2015), "Current Trends of Marketing Activities in Parallel Imports", Journal of Asia Trade and Business, 11(5), 55-57.

Hyun, Jun-Seog and Won-Joong Kim (2015), "A Study on the Effects of Export-Import Share and Exchange Rate", Journal of International Trade & Commerce, 11(1), 142-145. http://dx.doi.org/10.16980/jitc.11.1.201502.139

NB: For Oriental authors such as Korean, Chinese and Japanese authors, the first names are spelled out. Names shall be romanized according to their own preference. For Korean authors, the first and second syllables of first names shall be hyphenated.

Reference to a book:

Schmithoff, C. M. (2010), Letter of Credit, New York, NY: Pitman Press, 158.
Jeon, Soon-Hwan (2017), International Trade Practices (5th ed.), Seoul: Hanol, 156.

Reference to a chapter in an edited book:

Bomhoff, E. J. (1998), "Introduction". In E. M. Rogers and S. Taylor (Eds.), The Global Leadership Mindset (2nd ed.), Oxford, UK: Oxford University Press, 12-25.

Reference to a web source:

Liu, Chengwei (2005), Price Reduction for Non-conformity: Perspectives from the CISG. Available from http://www.cisg.law.pace.edu/cisg/biblio (accessed January 11, 2016)

Manuscript Review Timeframe

Manuscripts will be initially reviewed by the Editor within two weeks from submission.

The Editor will contact the corresponding author with news of whether or not the submission will be advanced to the first round of blind reviews (or is being rejected as not suitable for publication in the journal).

Typically, the blind review process takes approximately six to eight weeks.

The JAARS does not process any submission that does not comply with complete requirements of submission guidelines.

Contributors of articles accepted for publication will receive a complimentary copy of the issue in which their article appears.

ISSN 3006-4007 (Print)
ISSN 3006-4015 (Online)

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ISSN 3006-4007
9 773006 400266 10>