Research on the Linkage Mechanism of "Enrollment - Cultivation - Employment" in Chinese Colleges and Universities from the Perspective of International Comparison

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ABSTRACT

This article focuses on the construction of the full chain linkage mechanism of "enrollment - cultivation - employment" in colleges and universities, using comparative research and case study methods. The research selects countries such as the United States, Germany, Japan, and Singapore as comparison objects, deeply analyzes and systematically sorts out the operation mode and successful experience of their linkage mechanism of "enrollment - cultivation - employment" in colleges and universities, and compares the policy differences and implementation effects in enrollment, cultivation, and employment. The aim is to reveal the inspiration and reference significance of successful foreign experiences for the linkage mechanism of "enrollment - cultivation - employment" in Chinese colleges and universities, and to provide further optimization and reform ideas for internal coordination, external resource integration, and dynamic feedback mechanisms in China. This will provide theoretical support and practical guidance for building a more efficient and collaborative "enrollment - cultivation - employment" full chain mechanism in colleges and universities.

Keywords: *University linkage mechanism, Comparison between China and foreign countries, Enrollment - cultivation - employment, Full-chain collaboration, Talent supply and demand.*

1. INTRODUCTION

With the intensification of global competition in higher education, the effectiveness of the linkage mechanism of "enrollment - cultivation - employment" in colleges and universities has become the key to improving the quality of education and social service capabilities. Although China's higher education is large in scale, there are problems such as a disconnect between professional settings and market demand, and insufficient departmental collaboration. In 2024, the State Council's "Opinions on Accelerating the Construction of a High Quality Employment Service System for Graduates of Ordinary Higher Education Institutions" clearly proposed to "improve the enrollment plan, talent cultivation and employment linkage mechanism", highlighting the urgency of reform. At the same time, countries such as the United States and Germany have achieved deep integration of the education chain and industry chain through mature mechanisms, and their experience has important reference value for China. At present, China and foreign research focuses on policy analysis, school-enterprise cooperation models, and employment service systems, but lacks systematic comparison and theoretical integration. This study is based on systems theory (emphasizing element synergy), internationalization motivation theory of higher education (explaining cross-border education cooperation), cross-border higher education theory (analyzing resource flow), and institutional distance theory (exploring the root causes of policy differences), to construct a multidimensional analytical framework aimed at revealing the operational logic of the linkage

mechanism of "enrollment - cultivation - employment" in colleges and universities under different institutional backgrounds.

2. BASIS AND INFLUENCING FACTORS FOR THE FORMULATION OF "ENROLLMENT - CULTIVATION - EMPLOYMENT" POLICIES IN CHINESE AND FOREIGN COLLEGES AND UNIVERSITIES

2.1 Analysis of the Basis and Influencing Factors for Policy Formulation in Chinese Colleges and Universities

The formation and evolution of the "enrollment - cultivation - employment" policy in Chinese colleges and universities presents distinct characteristics of the times, with political, economic, and social factors intertwined behind it, jointly shaping the current policy landscape.

2.1.1 Three Stages of Policy Evolution

Plan allocation stage (1949-1985): In the early days of the founding of the People's Republic of China, higher education was fully incorporated into the national planning system, and enrollment, training, and employment were all centrally allocated by the government. In 1951, the "Decision on Reforming the Educational System" clearly stated that "graduates from higher education institutions shall be assigned jobs by the government". This stage of policy focused on serving the construction of industrialization and emphasized the centralized allocation of talents.

Two-way selection stage (1985-2015): After the reform and opening up, market-oriented reforms promoted policy transformation. In 1985, the “Decision of the Central Committee of the Communist Party of China on the Reform of the Education System” proposed that "graduates should choose their own jobs and employers should select the best candidates for employment", marking the establishment of the "two-way selection" system. In 1993, the "Outline of China's Education Reform and Development" further clarified that "colleges and universities will gradually implement fee-based education, and graduates can choose their own jobs", and the policy focus shifted to adapting to the needs of the market economy. In 2002, the "Opinions on Further Deepening the Reform of the Employment System for Graduates of Ordinary Higher Education Institutions" encouraged college students to work at the grassroots level, reflecting the prominent contradiction between supply and demand in the job market.

Quality-oriented stage (2015-present): High-quality development requires policies to focus on "employment quality". In 2017, the "Guiding Opinions on Promoting the Formation of a Linkage Mechanism between Employment and Enrollment Plan Talent Cultivation in Colleges and Universities" proposed the establishment of a dynamic adjustment mechanism for enrollment plans, and implemented early warning and reduction measures for majors with low employment rates. In 2025, the State Council's "Opinions on Accelerating the Construction of a High-Quality Employment Service System for Graduates of Ordinary Higher Education Institutions" emphasized that "guided by the demand for talents in the industry and the evaluation feedback from the employment end, the entire chain of training and supply should be optimized", and the policy goal should shift from "ensuring employment" to "improving quality and efficiency".

2.1.2 Interaction of Political, Economic, and Social Factors

Political factors: The national strategic orientation runs through the entire policy process. For example, the construction of "double first-class" includes employment quality in the assessment indicators of universities, strengthening the strategic orientation of policies; The strategy of "rural revitalization" promotes the establishment of agricultural majors in universities and expands support for grassroots employment.

Economic factors: Industrial structure upgrading directly affects professional settings. After the release of "Made in China 2025" in 2015, the enrollment scale of majors such as artificial intelligence and new energy in colleges and universities increased by an average of 15% annually; In 2023, Sichuan Province will implement a suspension of recruitment for majors with employment rates below 50% for two consecutive years, forcing the optimization of professional structure.

Social factors: changes in population structure and demands for educational equity drive policy adjustments. After the implementation of the "comprehensive two child" policy in 2016, the

enrollment scale of teacher education majors expanded by 20%; In 2024, the State Council requires colleges and universities to conduct tracking surveys on employment status, with the results serving as an important basis for subject evaluation, reflecting a focus on educational equity and social satisfaction.

2.2 Analysis of the Basis and Influencing Factors for Policy Formulation in Foreign Colleges and Universities

The policy-making of foreign colleges and universities is guided by national strategies, deeply aligned with labor market demands, and integrated with unique educational concepts, forming distinctive linkage mechanisms. The first is market driven and legal protection in the United States: The United States established a "one-stop career development center" through the “Labor Investment Act”, integrating education, training, and employment services, mainly based on national strategy and labor market demand, continuously integrate, optimize and adjust education and training tasks. The second is the combination of Germany's dual system and government regulation: Germany mainly introduces the "Training Promotion Law" from the perspective of national strategy and legal norms, which puts forward specific requirements for vocational education and training, and forces enterprises to participate in dual system education and professional settings. Students have 2 days of courses and 4 days of internships per week, and enterprise mentors participate in graduation design guidance. The third is the Japanese government's leadership and deep involvement of enterprises: In response to the domestic labor crisis, Japan has attracted international talents through the "Specific Skills Visa" and added fields such as automobile transportation and railway. International students can apply with a Japanese driver's license. The fourth is Singapore's strategic orientation and resource integration: Singapore has proposed the "Smart Country Special Plan" based on national strategy and industrial demand, promoting universities to prioritize the development of majors such as artificial intelligence and semiconductor. Its Applied Learning Program (ALP) deeply integrates academic knowledge with industry demand, further helping the education and employment system achieve cross-border integration.

3. COMPARATIVE ANALYSIS OF TALENT CULTIVATION GOALS AND STRUCTURAL CHARACTERISTICS AMONG CHINESE AND FOREIGN COLLEGES AND UNIVERSITIES

3.1 Structural Contradiction of Talent Cultivation in China

The core of the structural contradiction of talent cultivation in China is that supply lags behind demand, evaluation is separated from practice, and discipline is separated from strategy. Specifically, on the one hand, there is a mismatch between supply and demand. Firstly, it is the shortage of scientific and technological talents: the proportion of graduates from science, engineering, agriculture, and medicine continues to decline, but the density of scientific and technological research and development personnel is only one-third of that of countries such as Germany and Japan, and the number of researchers per million residents is much lower than that of developed countries; Secondly, basic research is weak: the proportion of basic research talents to R&D personnel is less than 10%, and there is a significant gap in the number of top talents (such as Nobel laureates and highly cited scientists) compared to the United States; Thirdly, there is a shortage of skilled talents: the demand ratio for skilled talents has been higher than 1.5 for a long time (with high skilled talents reaching 2.0), but the scale of secondary vocational education has shrunk, and the proportion of graduates in information technology and manufacturing has decreased by more than 10% in the past decade. On the other hand, there is a disconnect between education and social needs. Firstly, there is the lagging curriculum system: the updating of university courses is slow, with a focus on theory over practice, which is disconnected from the actual needs of enterprises; Secondly, the evaluation mechanism is single: excessive reliance on exam scores, neglecting comprehensive quality evaluation such as innovation ability and practical ability; Thirdly, the degree of internationalization is insufficient: students have limited opportunities for international exchange and lack the cultivation of cross-cultural communication skills; Fourthly, it is the mismatch between supply and demand in disciplines: engineering, medicine and other majors have high employment rates, but there is an oversupply of graduates in humanities and social sciences.

3.2 Typical Experience of Foreign Training Models

3.2.1 Germany: Systematic Collaboration for Deep Integration of Industry and Education

The dual system model of the German University of Applied Sciences integrates vocational education with academic education through enterprise demand-oriented professional settings, high-intensity integrated enterprise training, and a systematic school enterprise cooperation system, building an "employment-oriented" education system.

3.2.2 UK: Developing the Ability to Alternate Theory and Practice

The "sandwich course" model in British universities focuses on the three-stage training of "theory - practice - theory", using "thick sandwiches" (learning - work - learning) or "thin sandwiches" (segmented internships). Students receive paid internships for one year, and companies provide positions and participate in evaluations, emphasizing the deep integration of internships and academic learning. This model significantly enhances students' employment competitiveness, but there are also problems such as scattered internship resources in small and medium-sized enterprises and students being easily seen as cheap labor.

3.2.3 United States: Diversified Evaluation and Market-oriented Mechanisms

The "overall evaluation" system for undergraduate admissions at top universities in the United States relies on a combination of district experts, teacher self-evaluation, and principal evaluation. By integrating multidimensional indicators such as academic performance, innovative practice, interdisciplinary ability, and social responsibility, it adopts a "excellent - proficient - worried" level. Those who consistently score low need to participate in improvement plans in the training and employment process to select talents. American universities rely on school enterprise cooperation to strengthen the cultivation of practical innovation capabilities, and employment data is directly fed back to enrollment and curriculum adjustments.

3.2.4 Singapore: Discipline Layout Driven by Strategic Needs

University of Singapore has established the "Smart Nation Special Program" to prioritize the development of STEM (Science, Technology, Engineering, Mathematics) fields in response to the country's strategic economic transformation needs, with over 60% of STEM graduates. The school promotes the "holistic education concept" of "less teaching, more learning", cultivates critical thinking through inquiry-based learning, and establishes the "Future Skills" fund to support lifelong learning and prioritize the development of majors such as artificial intelligence and semiconductors. The school also cooperates with MIT to establish a carbon neutral laboratory, introduces international courses and output educational standards, and continuously promotes the transformation of scientific research achievements.

4. COMPARATIVE ANALYSIS OF THE COLLABORATIVE MECHANISMS OF "ENROLLMENT - CULTIVATION - EMPLOYMENT" IN CHINESE AND FOREIGN COLLEGES AND UNIVERSITIES

4.1 The Dilemma of Internal and External Collaboration in Chinese Colleges and Universities

The Chinese model is mainly policy driven and focuses on hierarchical and classified training, but improvements are needed in terms of synergy, market responsiveness, and individual attention. The first is the departmental barriers and data silos: the admissions office, academic affairs office, and employment center belong to different management systems, with disconnected goals (such as enrollment pursuit score lines and employment pursuit implementation rates), and the professional settings are not connected to market demand data, lacking a unified coordination mechanism. The second is the mismatch between the evaluation system and incentives: the evaluation of teacher titles focuses more on academic papers than on teaching practice, departmental KPIs ignore feedback on employment quality, and the enthusiasm of enterprises to participate in tra The third is the rigid allocation of resources: cross departmental collaboration projects lack dedicated budgets, and the construction of internship bases

relies on short-term school enterprise agreements, resulting in poor stability. The fourth is the insufficient collaboration among the government, enterprises, and industry organizations: school enterprise cooperation often remains at the level of internships and lacks deep integration.

4.2 Collaborative Innovation Practices of Multiple Entities Overseas

4.2.1 The United States Implementing Data-driven Precision Management Decisions

The first is a dynamic data platform: Michigan State University has developed the "Employment Quality Index", which integrates 12 indicators such as salary growth rate and employer satisfaction, and reverse corrects 30% of course content. The second is the market response mechanism: In Stanford University's "Open Loop University" program, 50% of course modules are designed with the participation of enterprises, and 75% of students work part-time in technology companies to accumulate credits.

4.2.2 Germany Doing a Good Job in Process Collaboration and Responsibility Definition

The first is the dual system of responsibility binding: RWTH Aachen University has established a "Teaching Factory Committee", where enterprise engineers, teachers, and HR jointly develop training programs, and enterprises bear 70% of the practical teaching costs. The second is to achieve a closed-loop system through certification: industry associations unify the assessment of practical credits to ensure that skill standards are synchronized with the industry (50% of high skilled talents in the manufacturing industry)

4.2.3 Targeted Training Model Led by Japanese Enterprises

Japanese companies are deeply involved in professional settings, such as KACHIAL Co., Ltd. partnering with Nantong University of Technology to offer a health and wellness program, with corporate engineers participating in lectures and providing employment opportunities. The government regulates school-enterprise cooperation through the "employment agreement" law to protect students' rights and interests.

4.2.4 Singapore Government Leading Resource Integration Strategy

The Singapore government coordinates cooperation between universities and enterprises from China, the United States, and Europe through the Global Innovation Alliance program, such as Nanyang Technological University and DBS Bank jointly building a fintech laboratory to incubate startups. Its “Regional Education Alliance” achieves mutual recognition of credits among ASEAN countries and expands talent mobility.

5. BUILDING A CHINESE CHARACTERISTIC "ENROLLMENT - CULTIVATION - EMPLOYMENT" FULL-CHAIN COLLABORATIVE MECHANISM

5.1 Core Connotation of Chinese Characteristics Collaborative Mechanism

The collaborative mechanism with Chinese characteristics needs to be based on the triple logic of national strategic needs, industrial transformation and upgrading, and comprehensive human development, with the framework of government led, university led, enterprise collaboration, and data-driven, to achieve dynamic adaptation of the three links. Its core features include: the first is the strategic compatibility led by the state. The professional setting needs to be aligned with the "bottleneck" technology field and regional industrial planning, and guided by the dynamic adjustment mechanism of enrollment plans to tilt resources. The second is the deep synergy of industry education integration. Drawing on the essence of Germany's dual system of "responsibility bundling", it is necessary to promote enterprises to bear the cost of practical teaching and form an order-based training model of "recruiting students and joining enterprises upon enrollment". The third is the agile responsiveness empowered by data. It is also necessary to establish a school level intelligent decision-making platform, integrate indicators such as employment rate, salary growth rate, and employer satisfaction, and reverse modify course content.

5.2 Breakthrough Path: Building a "Chinese Solution" for Full-chain Collaboration

5.2.1 Data Connectivity: Breaking down Departmental Walls and Building an Intelligent Decision Center

The first is to establish and improve a national level talent supply and demand big data platform. There is a must to integrate enterprise demand data from the Ministry of Human Resources and Social Security, university training data, and industrial planning data from the National Development and Reform Commission to generate a "red yellow blue" professional warning map, and promote the pilot "AI + employment" system to predict future regional talent gaps and employment trends. The second is to implement the "enrollment - cultivation - employment" quality annual report system. There is also a must to conduct a follow-up survey on the employment situation of college students, publicly disclose the professional employment rate, median salary, and employer satisfaction, and force dynamic adjustments in majors.

5.2.2 Responsibility Restructuring: Stimulating the Vitality of Multiple Subjects Through Interest Binding

The first is to implement a mechanism for deep participation of enterprises. By adding tax leverage, educational surcharges can be reduced or exempted for enterprises participating in school-enterprise cooperation. The second is to promote curriculum co construction. Part of the practical course development will be undertaken by the enterprise to more accurately meet the needs of personnel. The third is to promote the reform of teacher evaluation. It is necessary to increase or improve the weight of "curriculum industry adaptability" and "student employment quality" in teacher rank promotion and other aspects.

5.2.3 Strategic Matching: Aligning National Needs with Individual Development

The first is to implement incentive mechanisms at the national level. There is a must to establish a special fund to support universities and enterprises in jointly building laboratories and developing courses, and incorporate employment quality into the evaluation of the effectiveness of the "double first-class" construction and strengthen policy guidance. The second is to promote regional collaboration and demonstration leadership. There is also a must to establish "university - industry cluster" collaborative innovation centers in industrial intensive areas such as the Yangtze River Delta and the Guangdong-Hong Kong-Macao Greater Bay Area. Through "the Belt and Road" education cooperation, it is necessary to learn from the Singapore regional education alliance model to enhance international competitiveness.

6. CONCLUSION

In summary, the differences in policy formulation between domestic and foreign universities stem from differences in institutional foundations, cultural values, and governance logic. The theory of institutional distance suggests that China's policies are influenced by centralized governance, emphasizing government coordination, while countries such as the United States and Germany rely more on markets and social forces. Therefore, an efficient "enrollment - cultivation - employment" linkage mechanism needs to be guided by systems theory, integrating policy guidance, internal collaboration, external resources, and dynamic feedback. On the basis of adhering to government coordination, China should learn from the experience of marketization, rule of law, and internationalization abroad, and establish a full chain mechanism of "government coordination - university leadership - enterprise participation - social coordination" through legislative guarantees, data-driven approaches, and diversified collaboration. Personalized training should be integrated into the collectivist framework to achieve deep integration between higher education and economic and social development.

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