Research on Linked Reform Path of Key Teaching Elements to Improve the Matching Degree Between Food Majors and Food Industry Based on Niche Theory

Wang Bin, Chen Zhijie, Zhang Rong, Wang Yingni

[**Abstract**] Reform of key teaching elements including majors, curricula, teaching materials, teachers, internships and practical training in vocational education serves as the fundamental project for constructing the vocational education system and a crucial measure to cultivate high-skilled talents. Guided by the niche theory, this paper takes the linked reform of key teaching elements implemented by the food major cluster of Jiangsu Food & Pharmaceutical Science College as a case study. In accordance with the spirit of the official document *Opinions on Deepening the Reform of Key Teaching Elements in Vocational Education* issued by the Ministry of Education, it optimizes the original majors, curricula, teaching materials, teachers, internships and practical training, forming a replicable and promotable teaching reform paradigm and building a highland for cultivating high-skilled talents in food-related majors.

[**Key words**] higher vocational colleges; food majors; key teaching elements; linked reform

[**About the author**] Wang Bin (1981—), male, from Suqian, Jiangsu, China, professor of Jiangsu Food & Pharmaceutical Science College. Research interests: food ecological nutrition. Chen Zhijie (1980—), male, from Hanchuan, Hubei, China, associate professor of Jiangsu Food & Pharmaceutical Science College. Research interests: food quality and safety. Zhang Rong (1982—), female, from Huai'an, Jiangsu, associate professor of Jiangsu Food & Pharmaceutical Science College. Research interests: food digital economy. Wang Yingni (1986—), female, from Huai'an, Jiangsu, China, senior economist. Research interests: food industrial economy.

[**Fund**] This paper is funded by the 2024 Vocational Education Theoretical and Practical Research Support Project of the Center for Vocational Education Development, Ministry of Education, P. R. China (Project Number: JZZC25088).

[**DOI**] https://doi.org/10.62662/kxwxy0306003

[**Website**] www.oacj.net

1 Introduction

In February 2026, the Ministry of Education issued Opinions on Deepening the Reform of Key Teaching Elements in Vocational Education, requiring vocational colleges to advance the linked reform of key elements covering majors, curricula, teaching materials, teachers, internships and practical training. This reform aims to shift talent cultivation from the traditional transmission of knowledge and skills to the improvement of comprehensive vocational competence, boost systematic upgrading of vocational education, realize high-level school-running capacity and high-quality integration of industry and education, and foster a new ecosystem for cultivating skilled talents in vocational education. Systematically promoting the reform of the above key teaching elements helps construct a development path for major clusters featuring "uniqueness, superiority, distinctiveness and competitiveness", and forms a development pattern of major clusters that serves regional development, supports industrial growth and facilitates opening-up of vocational education. The requirement that "major setup shall align with industrial demands to build a major system closely linked to industrial and innovation chains" is a practical mandate of the *National Vocational Education Reform Implementation Plan*. To respond to the policy requirements on the development of food industrial clusters proposed in the *China Food and Nutrition Development Outline* (2025—2030) and the *Work Plan for the Construction of Jiangsu's* "1650" *Industrial System*, and to strengthen

the driving force of food major education for high-quality development of the food industry, this research draws on niche theory and takes the integrated development of the national high-level food major cluster of Jiangsu Food & Pharmaceutical Science College and Jiangsu's emerging food clusters as the research object.

2 Basic connotation of niche theory

The ecological niche is a core concept in ecology, referring to the status and role of a species within a biological community or ecosystem. As one of the theories in educational ecology, niche theory can be borrowed to identify solutions to various educational problems and effectively tackle bottlenecks in the development of vocational education.

The matching degree between the development of vocational college majors and regional industrial growth is a key indicator for the selection of the Second Phase National "Double High-level Plan". The niche of vocational college majors and that of regional industries reflect not only the spatial positions occupied by corresponding majors and industries but also their positions on gradients formed by various developmental environmental factors. In-depth exploration of the internal developmental laws linking niche theory, vocational college major niches and regional industrial niches facilitates sound interaction between major construction and industrial development, shaping an innovative development ecosystem consisting of towering "arbor trees", thriving "shrubs" and lush "seedlings".

3 Current situation and trends of food industry development

3.1 Nationaldevelopment status of the food industry

The food industry stands as the largest pillar industry of the national economy. Classified per the National Economic Industry Classification Standard (GB/T 4754-2017), the food industry encompasses agricultural and sideline food processing, food manufacturing, as well as wine, beverage and refined tea manufacturing. In 2023, the output value of industrial enterprises above designated size in the food sector reached 7.4 trillion RMB, accounting for 18.54% of the total national industrial output value of 39.91 trillion RMB, ranking first among all manufacturing sectors.

The food industry is a livelihood industry tied to people's quality of life. As the saying goes, "Food is the paramount necessity of people". Food safety and dietary nutrition and health are vital to the physical fitness and life quality of all citizens. The report to the 20th National Congress of the Communist Party of China stated that people's health is a symbol of national prosperity and strength, and safeguarding people's health should be placed in a priority strategic position.

3.2 Beauty of artdevelopment status of Jiangsu's food industry

The revenue growth rate of Jiangsu's food industry outpaces the provincial GDP growth rate. Latest data from the Jiangsu Provincial Bureau of Statistics show that in 2024, the operating revenue of the province's emerging food clusters exceeded 750 billion RMB, accounting for approximately 7% of the national total. The growth rate of food manufacturing reached 8.5% year-on-year, while that of wine, beverage and refined tea manufacturing hit 9.3%. The number of industrial food enterprises above designated size surpassed 2,000. Jiangsu's GDP stood at 13.7 trillion RMB in 2024, with a year-on-year growth of 5.8%, meaning the revenue growth of the food industry outperformed the provincial GDP growth over the same period.

Jiangsu ranks first nationwide in the quantity of food enterprises and food products. The comprehensive development strength of Jiangsu's food industry leads the country. In 2024, the province boasted over 2,000 food enterprises above designated size (with annual main business revenue no less than 20 million RMB), while the number of emerging food enterprises reached 3,264 and the number of food products hit 7,076, both ranking first nationwide. Jiangsu's emerging food industry prioritizes technological innovation and intelligent manufacturing, taking a leading position in technologies such as biological fermentation and functional food production, with prominent advantages in industrial clustering and green transformation.

3.3 Developmenttrends of the food industry and food majors

Four major trends are emerging in the food industry: First, high-end products. New types of nutritious and healthy foods including special medical foods, sports foods, military rations, aerospace foods, companion animal

foods and plant-based meat products are emerging in large numbers. Second, intelligent production processes. Big data, blockchain, artificial intelligence, 3D printing, nutriomics, metabolomics and other technologies are increasingly applied to food production processes. Third, green manufacturing. The national goals of carbon peaking by 2030 and carbon neutrality by 2060 impose higher requirements on manufacturing, with low-carbon and zero-carbon technologies widely promoted in food production. Fourth, personalized consumption. With the in-depth application of precision nutrition and artificial intelligence in food consumption and dietary nutrition, personalized and customized consumption tailored to different populations and physical characteristics has become mainstream.

The number of food majors approved nationwide has risen substantially. Released in January 2025, the work plan for the Second Phase National "Double High-level Plan" outlines three national layout priorities: serving regional development, supporting industrial growth and advancing education opening-up. Among the industrial cluster layout guidelines covering 32 provincial-level regions (including the Xinjiang Production and Construction Corps), 7 provinces and 1 provincial-level region explicitly list food industrial clusters (Hebei, Jilin, Jiangsu, Shandong, Henan, Guangdong, Chongqing and Sichuan), while another 5 regions implicitly cover food-related clusters (Inner Mongolia, Heilongjiang, Hubei, Guangxi and the Xinjiang Production and Construction Corps) through agricultural product intensive processing and liquor sectors. In total, 13 provincial regions account for 40.625% of all 32 layouts. In sharp contrast, among the 253 major clusters across 197 colleges under the First Phase National "Double High-level Plan" that have completed final performance evaluation, only 4 clusters contain the keyword "food", representing merely 1.58% of the total.

4 Surveyresults and analysis of matching degree between food majors and food industry in Jiangsu

4.1 Supply ofhigh-skilled talents from food majors in Jiangsu higher vocational colleges

Based on the latest public data from the Ministry of Education's database of filed higher vocational college proposed enrollment majors and the higher vocational college talent cultivation data collection and management platform, Jiangsu Province has 97 independent higher vocational colleges (including 4 vocational undergraduate institutions, excluding Jiangsu Union Technical Institute). Among them, 17 colleges offer majors linking to the entire food industrial chain, with a total student population of 6,971 and an annual talent output of 2,223 graduates for the food industry. The distribution across 13 prefecture-level cities is shown in Table 1.

Table 1 Overview of Food Major Setup in Higher Vocational Colleges of Jiangsu Province

City	College Distribution	Major Distribution	Enrolled Students	Annual graduates
Huai'an	Jiangsu Food & Pharmaceutical Science College Jiangsu Vocational College of Finance & Economics	Intelligent Food Processing Technology, Food Quality & Safety, Food Nutrition & Health, Food Inspection & Testing Technology, Food & Drug Administration, Grain Engineering Technology & Management	1849	616
Taizhou	Jiangsu Agri - animal Husbandry Vocational College	Intelligent Food Processing Technology, Food Inspection & Testing Technology, Food & Drug Administration	1318	439
Suzhou	Suzhou Polytechnic Institute of Agriculture Suzhou Polytechnic University Suzhou Industrial Park Institute of Services Outsourcing	Intelligent Food Processing Technology, Food Inspection & Testing Technology, Food & Drug Administration	1112	371

Continued Table 1

City	College Distribution	Major Distribution	Enrolled Students	Annual graduates
Nanjing	Jiangsu Vocational Institute of Commerce Zhongshan Vocational college	Food Inspection & Testing Technology, Food & Drug Administration, Food Nutrition & Health	725	242
Nantong	Nantong College of Science and Technology Nantong Vocational University	Intelligent Food Processing Technology, Food Inspection & Testing Technology, Food & Drug Administration	553	184
Zhenjiang	Jiangsu Vocational College of Agriculture and Forestry	Intelligent Food Processing Technology, Food Inspection & Testing Technology	499	166
Yangzhou	Yangzhou Polytechnic University	Food Inspection & Testing Technology	249	83
Changzhou	Changzhou Vocational Institute of Engineering	Food Quality & Safety	222	74
Xuzhou	Xuzhou College of Industrial Technology Xuzhou Vocational College of Bioengineering	Food Inspection & Testing Technology, Food & Drug Administration	241	81
Lianyungang	Lianyungang Normal University	Food Nutrition & Health	102	34
Yancheng	Yancheng Agriculture College	Agricultural Product Processing and Quality Inspection	101	33
Wuxi	–	–	–	–
Suqian	–	–	–	–

4.2 Demand forhigh-skilled talents in Jiangsu's high-quality food industry

This study tracks job postings released at the Jiangsu Emerging Food Industry Graduate Special Recruitment Fair hosted by Jiangsu Food & Pharmaceutical Science College from 2023 to 2025, combined with enterprise special recruitment fairs, follow-up surveys of alumni, internal statistics from industry and information technology authorities and public online data (some data as of December 2023). Table 2 illustrates the number of industrial food enterprises above designated size and the high-skilled talent demand of representative food enterprises across 13 prefecture-level cities in Jiangsu.

Table 2 Overview of High-skilled Talent Demand of Food Enterprises in Jiangsu Province

City	Number of Food Enterprises above Designated Size	Representative Enterprises	Recruiting Positions	Annual Recruitment Volume
Huai'an	236	Jiangsu King's Luck Brewery Co., Ltd.; Huai'an Want Want Food Co., Ltd.; Jiangsu Huai'an Shuanghui Food Co., Ltd.; Huai'an Kuailu Dairy Co., Ltd.; Jiangsu Guoran Herbal Technology Co., Ltd.	Production Management Trainee, On-site Quality Control Inspector, Laboratory Management Trainee	1549
Taizhou	246	Taizhou Anjoy Foods Co., Ltd.; Bairui Food (Jiangsu) Co., Ltd.; Hesheng Food Group Co., Ltd.; Jiangsu Baihui Agricultural Development Co., Ltd.	Production Management Trainee, On-site Quality Control Inspector, Laboratory Management Trainee	1321

City	Number of Food Enterprises above Designated Size	Representative Enterprises	Recruiting Positions	Annual Recruitment Volume
Suzhou	207	Suzhou Holiland Enterprise Management Co., Ltd.; Mondelēz Food (Suzhou) Co., Ltd.; Suzhou Quanwei Food Co., Ltd.; Jiangsu Depu Testing Technology Co., Ltd.; Quanrong (Suzhou) Food Co., Ltd.; Suzhou Daoxiangcun Food Co., Ltd.	On-site Quality Control Inspector, Technical Management Trainee, Maintenance Assistant, Bakery Trainee	932
Nanjing	124	Nanjing Nannong Food Co., Ltd.; Nanjing Wahaha Beverage Co., Ltd.; Nanjing Weigang Dairy Co., Ltd; Hanxincao (Jiangsu) Food Co., Ltd.; Nanjing Lekanghui Food Co., Ltd.; Luxihe Food (Group) Co., Ltd.; Nanjing Xizhilang Food Co., Ltd.	Management Trainee, Health Consultant, Nutrition Lecturer, Workshop Supervisor Trainee	925
Nantong	149	Nantong Haihui Food Co., Ltd.; Nantong Qianhe Food Co., Ltd.; Nantong Changhai Food Additives Co., Ltd.	Production Management Trainee, On-site Quality Control Inspector	725
Zhenjiang	102	Jiangsu Hengshun Vinegar Industry Co., Ltd.; Zhenjiang Zhinong Food Co., Ltd.; Jiangsu Chenghe Food Co., Ltd.; Jiangsu Yijiayuan Health Technology Co., Ltd.	Production Management Trainee, On-site Quality Control Inspector	512
Yangzhou	101	Yangzhou Perfect Daily Necessities Co., Ltd.; Yangzhou Weiyang Bean Food Co., Ltd.; Jiangsu Rongyicheng Food Co., Ltd.; Jiangsu Huamai Food Development Co., Ltd.	Health Consultant, Production Management Trainee	526
Changzhou	68	Changzhou Heyheyuan Food Co., Ltd.; Jiangsu Yiming Food Co., Ltd.; Liangren Langzuo (Changzhou) Health Food Co., Ltd.	Food Production Management Trainee, Store Manager Trainee, Bakery Apprentice	425
Xuzhou	162	VV Food & Beverage Co., Ltd.; Tianyi Food (Xuzhou) Co., Ltd.; Xuzhou Jintian Food Group Co., Ltd.	Production Management Trainee, Laboratory Inspector, Technician	685
Lianyungang	62	Jiangsu Hengyi Grain & Oil Co., Ltd.; Lianyungang Yihai Kerry Co., Ltd.; Lianyungang Baixianwu Marine Technology Co., Ltd.; Lianyungang Suhai Meat Food Co., Ltd.	Production Management Trainee, Inspection Laboratory Technician	375
Yancheng	257	Jiangsu Tongli Food Technology Co., Ltd.; Jiangsu Sixiyuan Food Co., Ltd.; Yancheng Feishi Food Co., Ltd.	Food Inspector, Management Trainee, Laboratory Technician	1154
Wuxi	121	Wuxi Licheng Medical Nutrition Co., Ltd.; Wuxi Huashun MinSheng Food Co., Ltd.; COFCO Malt (Jiangyin) Co., Ltd.	Inspector, Production Management Trainee, Malting Technician	755

City	Number of Food Enterprises above Designated Size	Representative Enterprises	Recruiting Positions	Annual Recruitment Volume
Suqian	207	Jiangsu Haocaitou Food Co., Ltd.; CP Food (Suqian) Co., Ltd.; Jiangsu Siyang Yongyi Food Co., Ltd.; Jiangsu Yantie Food Technology Co., Ltd.	Process Quality Controller, Testing Engineer, Management Trainee, Production Management Trainee	1105
Total	2042			10989

4.3 Matchinganalysis between high-skilled talent demand and supply

4.3.1 Misalignmentbetween urban industrial distribution and college major setup

Among Jiangsu's 13 prefecture-level cities, Huai'an, Suqian and Xuzhou position the food industry (including brewing, agricultural and sideline food processing, grain, oil and fruit & vegetable processing) as a hundred-billion-yuan industrial sector, while Taizhou, Yancheng and Lianyungang classify it as a ten-billion-yuan industry. The Jiangsu Provincial Government focuses on cultivating a green food industrial cluster centered on Huai'an, Suqian and Xuzhou, upgrading traditional food industries via technological transformation and intelligent upgrading.

Although food industries are not highlighted in industrial planning in Suzhou and Wuxi, whose GDP volume ranks high and other manufacturing sectors dominate, their food industry output value has exceeded 100 billion RMB. The food industry output value of Changzhou, Nanjing, Nantong, Zhenjiang and Yangzhou ranges from tens of billions to 100 billion RMB.

Take Suqian as an example: it hosts listed food enterprises including Jiangsu Yanghe Brewery Co., Ltd. and Jiangsu Yike Food Group Co., Ltd., alongside 207 food enterprises above designated size such as CP Food (Suqian) Co., Ltd. and Haitian (Suqian) Condiment Food Co., Ltd., creating an urgent demand for high-skilled talents. However, none of Suqian's three local higher vocational colleges (Suqian Preschool Education College, Suqian Vocational and Technical College, Suqian Zeda Vocational and Technical College) offer food-related majors. Yancheng, Lianyungang and Wuxi also own a large number of food enterprises above designated size with strong talent demand, yet their higher vocational colleges have a notably small student population in food majors.

4.3.2 Mismatchbetween industrial talent demand volume and college training output

Data from Table 1 and Table 2 show food enterprises above designated size exist across all 13 prefecture-level cities. In Huai'an City alone, there are 236 food enterprises above designated size requiring over 1,500 high-skilled talents annually, while local higher vocational colleges only graduate 616 food majors each year, meaning industrial demand far outstrips training output.

Statistics tracked from the past three sessions of the Jiangsu Emerging Food Industry Graduate Recruitment Fair show more than 200 enterprises covering the whole food industrial chain (including Huai'an Want Want, Jiangsu Huai'an Shuanghui, Nanjing Nannong Food, Jiangsu Yike Food, VV Food & Beverage, Yangzhou Perfect, Lianyungang Yihai Kerry, Changzhou Heyheyuan, Taizhou AnjoyFood, Suzhou Holiland and Jiangsu Hengshun Vinegar) provide over 10,000 job openings for food major graduates every year, with a job-to-graduate ratio exceeding 5:1, covering agricultural and sideline food processing, food manufacturing, wine, beverage and refined tea manufacturing and other sectors of the entire food industry chain.

4.3.3 Decouplingbetween enterprise job requirements and graduate training specifications

Taking job data from the 2025 Jiangsu Emerging Food Industry Graduate Recruitment Fair as an example: Around 3,500 positions are available for intelligent food processing, requiring proficiency in typical food processing, equipment operation and maintenance, digital management and intelligent production technologies.

Approximately 3,000 food quality inspection posts demand competence in physical and chemical testing, microbial testing, sensory evaluation, laboratory management, rapid detection and intelligent sensor monitoring. Roughly 2,000 food quality control positions require mastery of food safety control, quality certification, production compliance management, risk analysis and assessment, and digital quality control management. About 1,500 food nutritionist posts require capabilities in human nutritional component analysis, low-carbon healthy diet formulation and dietary guidance for chronic disease patients. A noticeable gap exists between graduates' competency and the technical literacy demanded by enterprise posts.

5 Linked reform path of key teaching elements to improve matching between food majors and food industry

5.1 Optimize major clusters in coordination with industrial demands

Dynamic adjustment of major setup is a fundamental requirement for linked reform of key teaching elements. In response to the current situation and trends of the food industry, centering on the emerging food cluster in Jiangsu's "1650" industrial system and three key industrial chains (prepared dishes, brewing and functional foods) among the province's 50 priority industrial chains, we orient talent cultivation toward technical skill demands of industrial clusters, closely follow the trend of intelligent, digital and networked transformation of traditional food industries, and align with post clusters covering product R&D, intelligent production, inspection and testing, nutritional catering, quality control and dietary management across the food industrial chain.

Following the principles of shared basic courses, resource sharing and optimal efficiency, we conduct in-depth argumentation on cluster logic and carry out dynamic optimization. Building on the excellent grade obtained in the national final performance evaluation of the First Phase National "Double High-level Plan", we fully align with construction requirements of the Second Phase National "Double High-level Plan". The original three majors are adjusted to four: Intelligent Food Processing Technology (490101), Food Quality & Safety (490102), Food Nutrition & Health (490103), and Food Inspection & Testing Technology (490104).

5.2 Innovatecurriculum systems aligned with occupational standards

Curriculum reform serves as the core of linked reform of key teaching elements. The curriculum system materializes abstract talent cultivation objectives into a series of "post-aligned, standard-connected and ideology-integrated" courses, benchmarking professional and vocational skill standards. Conduct post competency research against enterprise occupational standards. Assign core teachers to take on-the-job training in enterprises, sort out vocational action competencies required by posts, compile curriculum competency maps, and clarify competency objectives and teaching requirements for each course to build a curriculum system based on occupational standards. Break traditional discipline-based curriculum systems and advance modular and project-based curriculum reform. Take real enterprise work tasks as carriers, integrate work processes and learning processes, and construct a modular curriculum system targeting comprehensive vocational competency development of students. Establish a dynamic curriculum content update mechanism to revise teaching materials in a timely manner. Regularly invite enterprise experts to participate in curriculum content seminars, integrating new industrial standards, technologies and techniques into teaching. Strengthen curriculum ideological and political education. Integrate craftsmanship, labor spirit and model worker spirit into the whole teaching process to make up for deficiencies in students' humanistic literacy and digital literacy.

5.3 Optimizecharacteristic teaching materials through innovative content and form

Teaching material reform acts as the carrier of linked reform of key teaching elements. Vocational colleges shall innovate the content and form of teaching materials to make them more practical, situational and digital. Teachers of the research team conduct field research in technology departments, quality control departments and product testing centers of leading food enterprises, and cooperate with enterprises to develop high-quality new-form teaching materials. For typical teaching tasks of core courses, develop loose-leaf textbooks such as *Bread Production Technology* with granular teaching resources. Compile work-manual textbooks including *Analytical*

Instrument Operation and Maintenance based on real enterprise cases and post workflow. Develop three-dimensional textbooks such as *Rapid Food Detection Technology* by combining printed textbooks with online resources including videos, animations and virtual simulation. The team regularly discusses and updates teaching content, refines instructional design, explores new teaching methods including action-oriented, task-driven and situational teaching, and summarizes and promotes experience in teaching material and pedagogy reform.

5.4 Continuouslyupgrade dual-qualified teachers' competency focusing on teaching implementation

Teaching staff development is the linchpin of linked reform of key teaching elements. Vocational colleges shall refine teacher competency lists and comprehensively improve dual-qualified teachers' theoretical expertise, practical ability, teaching competence and teaching research capacity. We persist in educating students with Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, and explore moral education mechanisms that promote the professional culture of "conscience and integrity" for food majors. To meet teachers' demand for digital literacy upgrading, we integrate digital transformation of traditional food industries and industrialization of digital food sectors. Relying on the teacher training project management service platform, we explore paths to improve teachers' digital teaching literacy. We establish virtual teaching and research offices for intelligent food manufacturing to organize school-enterprise and inter-college joint teaching research activities, build high-level structured teaching innovation teams, and summarize and promote experience in constructing high-quality dual-qualified teaching staff.

5.5 Improveinternship and practical training systems through in-depth industry-education integration

Internship and practical training constitute the strengths and characteristics of vocational education. Vocational colleges shall transform practical training from "simulation-based" to "production-oriented" to enhance training efficiency. We explore tangible operation strategies for the Jiangsu (Huai'an) Green Food Industry-Education Consortium and the China Food Industry-Education Integration Community, gathering capital, technology, talent, policy and other resources to drive all stakeholders to deeply participate in the linked reform of key teaching elements for food major clusters. We integrate resources from development zones, industrial colleges, enterprise colleges, on-site engineer colleges and the university where the major cluster is located, conduct overall planning for on-campus and off-campus training base construction, innovate operation and cost-sharing mechanisms, and develop and promote authentic production-oriented practical training projects. We leverage technologies including DeepSeek large models to build a virtual simulation training base for food major clusters and the Northern Jiangsu Food Industry-Education Integration Practice Center, and explore digital approaches to strengthen practical teaching management and quality evaluation.

6 Conclusion

Niche theory advocates shaping distinct niches for both major development and industrial growth, forming a differentiated development path featuring "uniqueness, superiority and distinctiveness". In terms of major development, we shall build a sub-ecosystem where national-level food major clusters act as "arbor trees", provincial-level clusters as "shrubs", and municipal and college-level clusters as "seedlings". In terms of industrial development, we shall foster another sub-ecosystem with trillion-yuan food industries as "arbor trees", hundred-billion-yuan industries as "shrubs", and ten-billion-yuan industries as "seedlings". The two sub-ecosystems of major development and industrial development coexist and grow together, jointly constructing a sound ecosystem for integrated development of food major clusters and food industrial clusters across Jiangsu Province.

References:

[1] Rao Bin. Policy Drivers and Action Directions of Linked Reform of Key Teaching Elements in Vocational Education[J]. *Education and Vocation*, 2026(7): 15-24.

[2]Zhang Wei, Yin Ling, Yao Yue. Construction Practice of Higher Vocational FoodMajor Clusters Based on Jiangsu Food Industrial Clusters[J]. *The Food Industry*, 2020, 41(12): 272-275.

[3]Wang Bin, Zhai Weiwei. Exploration and Practice on Constructing High-level Food Major Clusters in Higher Vocational Colleges—A Case Study of Jiangsu Food & Pharmaceutical Science College[J]. *The Food Industry*, 2021, 42(6): 368-373.

[4]Li Guoliang, Ji Wusheng, Niu Jincheng. Analysis on Optimization Path of Practical Teaching Quality Monitoring System in Higher Vocational Colleges from the Perspective of Educational Ecology[J]. *Education and Vocation*, 2023(19): 46-53.

[5]Sun Hanchang, Li Xiaoying, Zheng Li, et al. Construction of Excellent Vocational Skilled Food Talent Cultivation Model Based on Local Industrial Demands[J]. *Journal of Higher Education*, 2024, 10(7): 160-163.

[6]Hao Jianxiong, Zhao Dandan, Rao Huan. Research on Innovative Talent Cultivation Model for Light Industry Food Industry from the Demand Perspective[J]. *China Food Safety Magazine*, 2021(22): 166-167.

[7]Ma Bo, Sun Jie, Wu Yanfeng. Matching Analysis Between Industrial Talent Demand and Higher Vocational Major Setup—A Case Study of Cold Chain Logistics Industry[J]. *Chinese Vocational and Technical Education*, 2022(2):78-84, 96.

[8]Tang Hongmei, Zhang Peiming. Matching Analysis Between Medical Device Industry Talent Demand and Higher Vocational Major Setup[J]. *Chinese Vocational and Technical Education*, 2020(35): 23-32.

[9]Lyu Qing, Huo Xinran. Practical Needs, Connotation Essentials and Promotion Logic of Key Teaching Element Reform in Higher Vocational Education from the Perspective of Resilience Governance[J]. *Journal of Wuhan Polytechnic of Communications*, 2026, 28(1): 103-110.

[10]Zheng Jiewen, Ji Biao. Practical Dilemmas and Practical Paths of Key Teaching Element Reform in Vocational Educationunder the Concept of Developing Students' Aptitudes[J]. *Education and Vocation*, 2026(10): 23-32.

[11]Zhao Wenping, Wang Xiaojun. Coordinated Reform Path of Key Teaching Elements Guided by Vocational Logic[J]. *Vocational and Technical Education*, 2026, 47(21): 3-9.

[12]Wang Xinbo, Wang Luyi. Role Orientation and Path Remodeling of Teachers in Linked Reform of Key Teaching Elements in Vocational Education[J]. *Vocational and Technical Education*, 2026, 47(14): 12-18.

[13]Lei Shiping, Ye Wei. Enterprise Subjectivity in Key Teaching Element Reform of Vocational Education: Connotation and Orientation[J]. *Vocational and Technical Education*, 2026, 47(21): 10-16.

[14]Lu Yuzheng. How Key Teaching Elements of Vocational Education Adapt to New Requirements in the Intelligent Era—Strategic Logic of Deploying Multi-agents in Vocational Education During the 15th Five-year Plan Period[J]. *Vocational Education Research*, 2026(2): 10-18.