



Research on Cultivating Undergraduate Professional Core Competence from the Perspective of Industry Education Integration

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Abstract. Research and deeply tap the needs of emerging industries, closely follow the needs of Digital transformation development of traditional industries, so as to position the core professional competence of undergraduate students. Taking the cross-border e-commerce major of application-oriented undergraduate universities as an example, this study explores the practical needs of emerging cross-border e-commerce fields from the perspective of deep integration of industry and education, positioning students' core professional abilities, and constructing a talent cultivation system.

Keywords: Integration of Industry and Education, Professional Core Competencies, Cross Border E-commerce.

1 Introduction

The advent of the "digital economy" era has spawned numerous innovative business models and practices across various industries, while simultaneously fostering the digital and green transformation of traditional sectors. For instance, the emergence and rapid growth of cross-border e-commerce online trading platforms have become a pivotal strategy for the transformation of the foreign trade sector in this new era, garnering growing interest. Despite the thriving digital economy, a shortage of skilled professionals in emerging industries remains critical. Universities struggle to produce the new talent needed to meet market demands, with training programs often failing to align with real-world practices, significantly impeding the growth of the new economy. In this context, it is crucial to deeply integrate industry with education, better understand the needs of emerging sectors, define core professional competencies, establish tailored talent training programs, and develop core courses.

2 Survey and Analysis of the Skills Requirements for Cross-Border E-commerce Talents

2.1 Talent Recruitment Channels for the Cross-Border E-commerce Industry in the Yangtze River Delta Region

An increasing number of enterprises are in need of cross-border e-commerce talents, making these channels increasingly crucial for both enterprises seeking talent and graduates seeking employment. Presently, enterprises and graduates primarily seek talents and positions through various recruitment websites (such as College Student Talent Recruitment Network, 51job, Zhilian Recruitment, etc.), recruitment software (boss direct recruitment, internship monk, etc.), online and offline job fairs (2021 Yangtze River Delta High Level Talent Cloud Recruitment Fair), and school-enterprise joint recruitment efforts.

2.2 Talent Demand Situation

From 2017 to 2022, the number of registered enterprises related to cross-border e-commerce in China surged year by year (as shown in Fig. 1), over 80% of the surveyed enterprises are private, with 60% having fewer than 50 employees, and 75% of these demand less than 10 talents each. Only 25% of these enterprises demand more than 10 talents [1]. With the rapid growth of the cross-border e-commerce sector, there is a significant talent deficit, amounting to a national shortage of 9.85 million by the end of 2022.

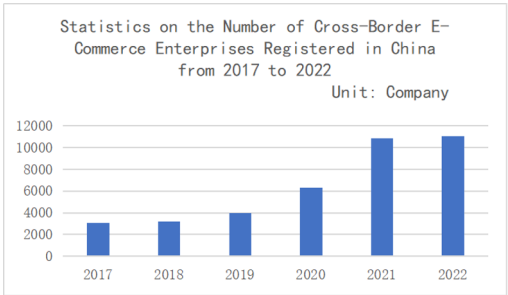


Fig. 1. Statistics on the registration volume of cross-border e-commerce related enterprises in China from 2017 to 2022.

2.3 Job and Comprehensive Skills Requirements

2.3.1 Cross-border E-commerce Job Demands. The demand for cross-border e-commerce talents is multifaceted. The majority of talent needs are in marketing positions, primarily sales and customer service, making up over half of the total; followed by operational management roles, including procurement, logistics, and platform operations, which account for about one-third; other roles include operations and planning. An analysis of current enterprise demand for cross-border e-commerce talent levels

indicates a strong preference for composite talents, proficient in both foreign trade and e-commerce.

2.3.2. Comprehensive Skills Requirements for Cross-Border E-Commerce Talents. The skill requirements for cross-border e-commerce talents are typically shaped by the specific business operations of the enterprise. Most enterprises are commercial entities that leverage e-commerce platforms to expand their cross-border operations and broaden their market reach. Consequently, online marketing skills are highly valued in cross-border e-commerce talent requirements, followed by electronic trading capabilities. Electronic trading encompasses a wide range of aspects, including online procurement, payments, and trade. Additionally, skills in e-commerce logistics, website construction, database management, and office automation are also important.

2.4 Enterprises' Basic Assessment of Cross-Border E-Commerce Graduates from Application- Oriented Undergraduate Institutions

Currently, applied undergraduate programs in cross-border e-commerce are highly represented in majors such as international trade, e-commerce, international business, and English. Despite these graduates' diverse professional backgrounds, the monoculture of their disciplines means that companies increasingly seek interdisciplinary talent. On one hand, most graduates prioritize theory over practice, resulting in weak problem-solving abilities and a lack of practical experience; on the other hand, teaching at schools is often out of sync with the forefront of societal advancements, leading to outdated knowledge and a narrow perspective among graduates.

3 Positioning of Professional Core Competencies for Cross-Border E-commerce Students

The primary target markets for cross-border e-commerce exports from enterprises in the Yangtze River Delta region are mature markets in Europe and America, particularly the United States and France, with a growing presence in emerging Southeast Asian markets. Located at the epicenter of traditional manufacturing, the region boasts an excellent foreign trade environment, primarily exporting consumer goods such as apparel and 3C electronics. The survey of talent needs in the cross-border e-commerce sector of the Yangtze River Delta region has identified the following professional core competency modules (as depicted in Fig. 2):

3.1 Network Marketing Capability Module

Cross-border e-commerce necessitates that practitioners possess foundational knowledge in online marketing, be well-versed in the settlement methods of consumers across various countries and regions, and be well-informed about consumer psychology. They must be adept at selecting products and formulating marketing strategies

tailored to individual consumer needs, as well as conducting online marketing and promotional activities through various channels, including targeted search engines.

3.2 Big Data Management and Application Capability Module

Data mining technology holds significant value in segmenting customers, retaining customers, expanding customer base, targeting marketing, delivering personalized services, assessing creditworthiness, detecting fraud, analyzing performance, analyzing profits, forecasting revenue, managing inventory, and other aspects of cross-border e-commerce. This necessitates that practitioners possess data mining and analysis skills to further refine cross-border e-commerce operational strategies.



Fig. 2. Cross-border e-commerce professional core competency matrix.

3.3 Cross-Border E-Commerce Platform Operation Competency Module

Utilizing cross-border e-commerce platforms such as Amazon, eBay, AliExpress, etc., to conduct cross-border export business is a crucial pathway for foreign trade enterprises to explore the realm of cross-border e-commerce. This necessitates that professionals in the cross-border e-commerce sector be adept at operating cross-border e-commerce platforms to carry out practical import and export operations such as managing inquiries, making offers, negotiating counteroffers, providing customer service, and handling product management.

3.4 Supply Chain Management Competency Module

The complete supply chain in cross-border e-commerce encompasses the entire lifecycle of a product, from product development to supplier management, procurement,

stockpiling, and warehousing, through to marketing, brand building, and more. This requires cross-border e-commerce talents to efficiently coordinate the various aspects of the supply chain, including rational procurement, enhancing supplier performance management, effectively managing inventory, standardizing import and export processes, and selecting logistics providers in a regulated manner, to complete the entire cross-border e-commerce process.

3.5 Foreign Language and Cultural Understanding Competency Module

English, as an international lingua franca, is essential for engaging in cross-border business activities such as foreign trade. Additionally, other languages such as Japanese, French, German, Spanish, Portuguese, Italian, and Arabic are also crucial. Communicating directly in the customer's native language fosters trust. Furthermore, diverse customs, cultures, and social norms across different countries necessitate that cross-border e-commerce personnel not only exchange emails but also understand the cultural backgrounds and local customs of their counterparts. This requires cross-border e-commerce professionals to master communication in niche languages and understand the cultural context according to the needs of their enterprise, in order to carry out targeted cross-border e-commerce business activities.

3.6 Short Video Planning and Editing Competency Module

Short videos are a significant source of internet traffic, and social media has become a primary channel for consumers to access information, entertainment, and shopping. Short video marketing has emerged as an important method of promotion on social media platforms. Cross-border e-commerce personnel must possess the ability to plan and design short videos, shoot related clips, and upload them to platforms after post-production, thereby enhancing customers' immersive experiences.

4 Analysis of the Misalignment between Existing Talent Training Systems and Professional Core Competencies

4.1 Current Cross-Border E-Commerce Talent Training Systems in Applied Undergraduate Institutions

Colleges and universities have primarily divided the current talent training systems for cross-border e-commerce into three categories:

- A. Business English programs adding courses related to foreign trade.
- B. E-commerce programs offering a cross-border e-commerce specialization.
- C. International trade programs offering a cross-border e-commerce specialization.

4.1.1 Business English Programs Adding Foreign Trade Courses. This model, represented by Huzhou University, adds specialized courses in foreign trade to the business

English talent training system. The aim is for students to acquire some foreign trade skills, achieving a "foreign language + foreign trade" interdisciplinary training model. While this model meets the skill requirements of the foreign trade industry [2], it falls short in satisfying the demands for internet marketing, short video planning, and platform operation skills in the cross-border e-commerce field.

4.1.2 E-Commerce Programs Offering a Cross-Border E-Commerce Specialization. This model, represented by Zhejiang International Studies University, introduces courses such as international logistics and international payments to the e-commerce talent training system. It aims to equip students with some foreign trade skills. Although this model addresses certain skill needs in cross-border e-commerce, it may overlook the importance of language communication and short video planning skills.

4.1.3 International Economics and Trade Programs Offering a Cross-Border E-Commerce Specialization. This model, represented by Jiaying University, adds practical courses on cross-border e-commerce platform operations to the international economics and trade talent training system. It satisfies some skill needs related to cross-border e-commerce platform operations but does not address internet marketing and short video planning skills.

4.2 Issues in Cross-Border E-Commerce Talent Training at Colleges and Universities

Most colleges and universities are out of step with industry trends. Faced with the massive talent gap caused by the rapid development of the cross-border e-commerce industry, there is often insufficient innovation and reform. Talent training programs are not updated in a timely manner, and the integration of industry and education is not deep enough, leading to a mismatch between talent supply and industry demand. The specific manifestations include:

4.2.1 Unreasonable Design of Training Program Curriculum Systems. Due to insufficient understanding of the concept of cross-border e-commerce and the current state of the industry, some colleges and universities face numerous problems in setting graduation requirements, training objectives, and constructing curriculum systems for cross-border e-commerce majors. For example, the specialized skills courses in cross-border e-commerce offered by majors such as international economics and trade, and business English, are somewhat arbitrary and do not closely align with the needs of the cross-border e-commerce industry.

4.2.2 Lack of Skilled "Dual-Professional" Teachers. Most cross-border e-commerce teachers come from other disciplines and lack industry experience. Although some teachers are sent to cross-border e-commerce companies for practical training, insufficient motivation leads to inadequate mastery of the practical skills involved in cross-

border e-commerce business processes, resulting in generally low practical skills among students.

4.2.3 Lack of Practical Training in the Teaching Process. Professionals in cross-border e-commerce need to systematically master theoretical knowledge and practical skills in foreign trade and e-commerce, as well as possess good comprehensive professional qualities such as foreign language proficiency. Currently, some teachers still rely heavily on classroom lectures, emphasizing theory over practice, which hinders students' self-learning ability and comprehensive practical skills. Although there are relevant laboratories, they only partially meet the needs for simple operational training and cannot fulfill the demands for more complex and real-world training, leading to a lack of hands-on experience in cross-border e-commerce among students.

5 Construction of Cross-Border E-Commerce Talent Training System in Applied Undergraduate Institutions

5.1 Basic Model for the Construction of Cross-Border E-Commerce Major

To build a curriculum system that deeply integrates industry and education for the core competencies of cross-border e-commerce professionals, it is necessary to first consider the skill requirements of industry positions and set up corresponding professional courses, while also optimizing the dual-professional teaching staff to further achieve deep integration of industry and education (as shown in Fig. 3).

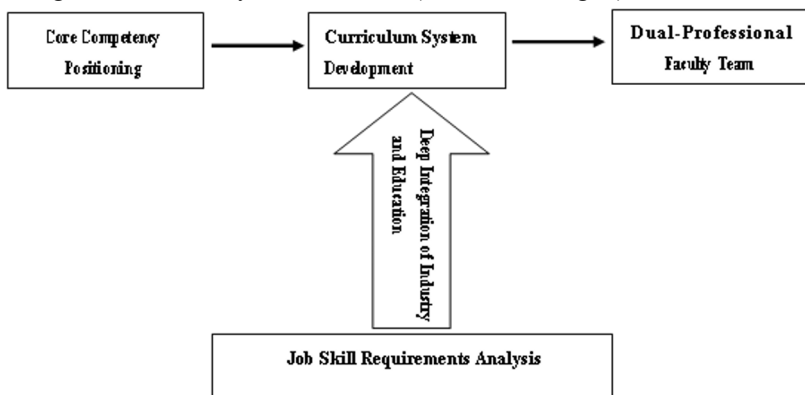


Fig. 3. Cross-border e-commerce major construction basic model.

5.2 Layered and Staged Training Program Curriculum System Development

When constructing the training program curriculum system, it is necessary to layer the offerings based on the actual circumstances of the relevant majors at the institution. Determine the broad categories of job roles for talent cultivation in the major. Taking Huzhou College as an example, the college, based on the recommendations of cross-

border e-commerce industry experts and the actual situation of existing professional courses, proposes a layered and classified training model for cross-border e-commerce talent: skill-based, operation-based, and diverse.

5.2.1 Skill-Based Talent Training with Professional Skills at the Core. Huzhou College actively collaborates with cross-border e-commerce platforms such as Amazon, AliExpress, and eBay. Students can engage in hands-on practice by working in groups on all skill modules within the platforms, covering areas such as supply chain management, product selection and listing, store design, marketing and traffic attraction, and video editing [3], enabling them to master basic cross-border e-commerce skills.

5.2.2 Operation-Based Talent Training with Store Operation at the Core. The college establishes off-campus training bases with enterprises, allowing students to engage in real-world operations of cross-border e-commerce stores, handling issues such as procurement, shipping, order management, marketing promotion, and after-sales customer service. By integrating professional learning with store operations [3], students can fully exercise their initiative and self-learning abilities, gaining operational skills through practical training.

5.2.3 Composite Talent Training with Cross-Border Business at the Core. The college has added modular courses in languages such as Japanese and French, as well as business data analysis, to the cross-border e-commerce curriculum to cultivate high-end, composite talents with advanced professional knowledge, strong IT skills, and a deep understanding of business operations.

5.3 Construction of a Practice Curriculum System with Deep Industry-Education Integration

The practical system of the cross-border e-commerce major should include three aspects: classroom training in cross-border e-commerce, simulation training on campus with guidance from industry mentors, and off-campus practice at teaching bases. This integration of simulation teaching and real-world operations aims to cultivate professional talents. The implementation is divided into two stages:

First Stage (Professional Practice): "Bringing In" Stage. Combine practice weeks, summer social practice activities, and cross-border e-commerce operations with corporate partnerships to establish cross-border training labs on campus. Companies provide funding, supply chain sources, and technical support while students use the company's cross-border e-commerce platform for marketing promotion and sales. Entrepreneurial project collaborations can also be adopted, with company employees acting as mentors to guide students through overseas marketing promotion, store operation management, customer development and service, order tracking, and international logistics applications [4].

Second Stage (Graduation Internship): "Going Out" Stage. Send students to the school's teaching practice bases for centralized internships. Students take on rotating internships in various positions at cross-border e-commerce companies, such as foreign trade operations, store operations, e-commerce customer service, live streaming operations, hosting, and live stream control, to master various skills and facilitate dual-choice employment between students and companies.

5.4 Building a "Dual-Professional" Teaching Staff with Deep Industry-Education Integration

In addition to establishing a team of industry mentors, it is necessary to build a team of "dual-professional" instructors within the school. Encourage teachers to leave the campus and enter companies and industrial parks to receive training from industry and government sources. This includes planning to introduce full-time teachers with cross-border e-commerce experience or hiring high-quality part-time teachers from cross-border e-commerce companies, seeking various opportunities for teacher skill training and practical exercises to enhance their cross-border e-commerce business knowledge and practical abilities, and establishing an industry expert think tank team. This team should consist of full-time and part-time teachers, with experts from government, customs, banks, logistics, and other sectors, offering a flexible and diverse teaching approach [4].

5.5 Design of a School-Government-Enterprise Collaborative Talent Training Program

The government should increase its support for cross-border e-commerce companies and financial investment in cross-border e-commerce talent training at colleges and universities. It should provide necessary support and funding, create favorable talent and enterprise policies, and promote the establishment of order-based training relationships and industry-academia research cooperation mechanisms between companies and universities (as shown in Fig. 4).

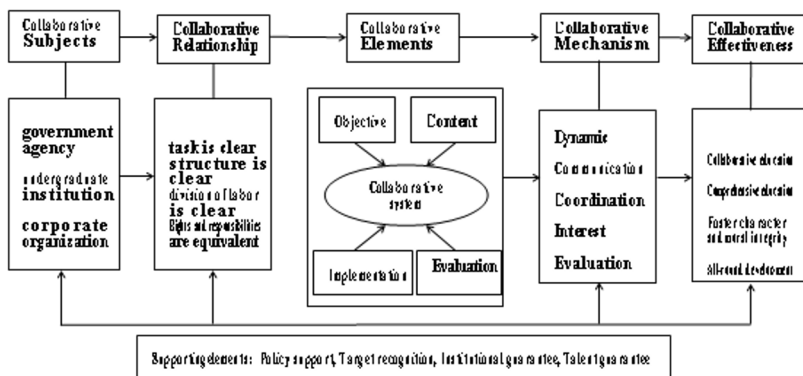


Fig. 4. School-government-enterprise integrated collaborative talent training system.

Taking Huzhou College as an example, the college adopts a model of enterprise-named micro-majors, involving companies in the teaching process in advance. This includes incorporating company resources into the curriculum system, practical teaching guidance, and corporate culture integration. Practical courses are taught by experts from collaborating companies, combining company needs with talent training. The college also works with the government to organize summer practice activities for students and centralized internships upon graduation, led by the school with the government providing a platform for companies to offer paid internships and subsidies, greatly enhancing student enthusiasm for practical teaching.

5.6 "Professional Internship, Graduation Thesis, Employment" Trinity Implementation

In the teaching management of colleges and universities, graduation internships, graduation theses, and employment are generally carried out independently, with students receiving guidance from three separate instructors, and the three teaching activities cannot be directly managed. In line with the central government's spirit of "stabilizing employment," Huzhou College has adopted a trinity approach to the implementation of graduation internships, graduation theses, and employment since 2023, with a new model combining centralized and decentralized internships.

The so-called trinity integration means that a graduation internship, graduation thesis, and employment work are arranged under the guidance of one instructor from the school and one from outside the school, adopting a dual tutorial system with both internal and external mentors. Students are assigned by the school to internship bases for centralized internships based on their graduation thesis topics and employment intentions (as shown in Fig. 5). For students preparing for postgraduate entrance exams or civil service exams, decentralized internships are adopted, allowing them to independently contact internship units. Through centralized internships and the dual tutorial system, practical issues in graduation theses can be addressed, enhancing students' practical abilities and personal qualities, closely aligning their theoretical knowledge with societal demands, and further achieving high-quality employment.

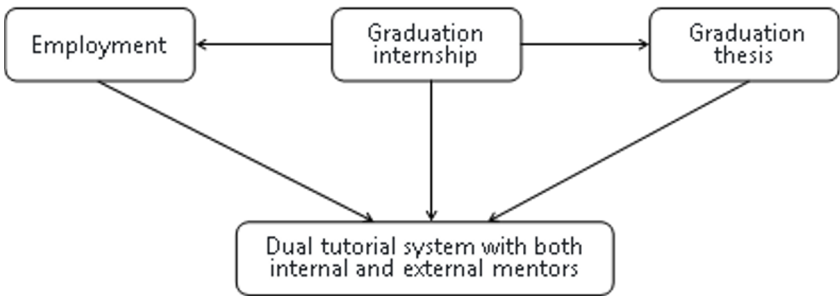


Fig. 5. “Graduation internship, graduation thesis, employment” trinity integration.

6 Conclusion

This topic proposes that the cross-border e-commerce major should set layered and phased talent training objectives based on the actual needs of the cross-border e-commerce industry in the Yangtze River Delta region. It designs a school-government-enterprise integrated collaborative talent training system, as well as an implementation plan for the trinity of "professional internships, graduation theses, and employment." This approach has high theoretical and practical value, further supplementing and developing the theory of cross-border e-commerce talent training systems. It also provides executable plans and strategies for the training of cross-border e-commerce talents in applied undergraduate colleges and universities, delivering talents that meet the industry's needs to society. This is of great significance for promoting the development of the cross-border e-commerce industry.

Fund project. Annual Planning Topic of Zhejiang Provincial Education Science "Research on the Cultivation of Cross-border E-commerce Professional Core Competencies in Applied Undergraduate Institutions in the Yangtze River Delta from the Perspective of Industry-Education Integration" (Number: 2022SCG042).

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