Advances in Educational Technology and Psychology (2025)
Clausius Scientific Press, Canada

DOI: 10.23977/aetp.2025.090602
ISSN 2371-9400 Vol. 9 Num. 6

A "Trinity" Collaborative Cultivation Mechanism for Higher Education in the Post-Pandemic Era

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Keywords: Post-Pandemic Era, University Graduates, Employability, Education Reform, Collaborative Cultivation

Abstract: In the post-pandemic era, university graduates face multiple employment challenges, including job market contraction, intensified competition, and skills mismatch, which have further exacerbated the disconnection between traditional higher education models and labor market demands. Based on an empirical analysis of the current employment landscape, this study proposes a systematic strategy from the collaborative perspective of universities, faculty, and students. By optimizing curricula, strengthening practical platforms, innovating teaching methods, enhancing psychological support, and fostering comprehensive skills, a "demand-driven, competency-based" pathway for improving employability is constructed, providing theoretical and practical insights for addressing graduate employment challenges.

1. Introduction

In recent years, the scale of university graduates has continued to rise, with significant growth compared to pre-pandemic levels. However, due to global economic uncertainties, corporate recruitment demands have not kept pace but instead contracted, leading to a shortage of job opportunities. This supply-demand imbalance has intensified competition in the job market, particularly in first-tier cities, where the applicant-to-position ratio for popular jobs can reach as high as 1:5. Data[1] show that in 2022, the number of Chinese university graduates exceeded 10 million for the first time, but the employment rate plummeted to 50.4% due to pandemic-related economic downturns, marking the most challenging job-seeking season in history. From 2023 to 2025, the number of graduates is projected to remain high, reaching 11.58 million, 11.79 million, and 12.22 million, respectively, further intensifying employment pressures. Although the employment rate has rebounded with economic recovery, it remains within the 55%–60% range.

Related analysis indicates that the global job market is undergoing profound transformations characterized by structural adjustments, skill demand upgrades, and diversified employment forms[2]. Employers increasingly prioritize "job-ready" candidates, emphasizing practical experience (e.g., internships, project work, tool proficiency), interdisciplinary skills (e.g.,

combining majors with digital competencies), and soft skills (e.g., resilience, teamwork). Traditional education models, which emphasize theory over practice, struggle to meet these demands. The employment challenges for graduates in the post-pandemic era are not solely due to a lack of positions but stem from a deeper mismatch between graduates' skill sets and market needs. On one hand, many students lack practical experience, possess narrow skill sets, or have unclear career plans, making it difficult to meet employers' expectations. On the other hand, long-standing exam-oriented education and pandemic-induced online learning have weakened students' self-directed learning abilities, psychological resilience, and social adaptability, further aggravating employment anxiety. Against this backdrop, higher education institutions, as the primary cultivators of talent, must undertake systemic reforms. By integrating top-down institutional design, faculty-led pedagogical innovation, and student-driven self-improvement, a collaborative framework for employability enhancement can be established.

2. Trends in the Post-Pandemic Job Market

Following the pandemic's resurgence in 2022, the global economic recovery has been uneven, domestic industrial structures have rapidly transformed, and the ongoing expansion of higher education has collectively shaped the graduate job market. Key features include overwhelming competition, structural imbalances, evolving employer demands, diversified employment forms, and intensified "involution" (over-competition).

From the perspective of the industry landscape, traditional labor-intensive sectors (e.g., manufacturing, retail) have slowed hiring, while emerging fields like the digital economy, green economy, and healthcare have become primary drivers of job growth[3]. In China, for instance, recruitment in artificial intelligence and new energy surged by over 25% in 2024, whereas sectors like real estate and education faced significant job cuts. This polarization has created a "bipolar" job market, with talent shortages in some areas and layoffs in others. Meanwhile, global supply chain restructuring and accelerated digital transformation have heightened demand for interdisciplinary talent, particularly those with combined technical and managerial expertise or hybrid skills (e.g., "technology + management", "major + digital proficiency").

In terms of skill demands, the labor market exhibits an increasingly pronounced preference for job-ready candidates. Employers no longer prioritize academic credentials alone; instead, they place greater emphasis on applicants' practical competencies, technological application proficiency, and soft skills. Surveys indicate that 85% of employers favor candidates with relevant project experience over graduates with advanced degrees but lacking hands-on experience. Furthermore, the proliferation of artificial intelligence (AI) is reshaping occupational demands: routine, repetitive tasks are progressively automated, while roles requiring creativity and complex problem-solving are experiencing substantial growth. This trend is compelling higher education systems to reform, urging universities to strengthen industry–education integration and enhance students' experiential learning and job-readiness.

In addition, it can be found that employment configurations are undergoing flexibilization and diversification. In the post-pandemic era, the expansion of the gig economy and remote work has significantly elevated the share of non-standard employment. Data show that by 2024, China's flexible workforce had exceeded 200 million, with graduates from higher education institutions accounting for 25%. While offering broader career options, flexible employment also entails challenges such as inadequate social protection and unclear career pathways. To mitigate employment pressures, some graduates opt for postgraduate entrance exams or civil service examinations, sustaining the trend of "slow employment"[4].

Also, the geographic polarization of the labor market and the declining educational premium are

pronounced. Competition for positions in first-tier and second-tier cities is intense, with each vacancy receiving upward of 200 applications on average; meanwhile, third-tier and fourth-tier cities with concentrated manufacturing sectors report a 40% vacancy rate for technical posts, reflecting a dual dilemma of labor shortages and employment difficulties. Amid graduate enrollment expansion, the competitive advantage conferred by a master's degree has weakened, with some positions even witnessing PhD holders competing for bachelor's-level roles—a manifestation of credential depreciation. These dynamics further intensify intra-market competition, heighten graduates' psychological stress, and contribute to widespread anxiety.

3. Multidimensional Analysis of College Graduates' Employment Challenges

The employment challenges faced by college graduates in the post-pandemic era manifest as a triad of interrelated dilemmas, each exacerbating the others in a vicious cycle. Firstly, a fundamental mismatch between graduates' ability structures and market demands lies at the core of the issue. In terms of professional competencies, engineering graduates often exhibit a gap between theoretical knowledge and practical application, with 83% of new hires in manufacturing requiring 3-6 months of hands-on training to perform basic technical tasks independently, highlighting a disconnect between university laboratory instruction and industry practice. Liberal arts students, meanwhile, show deficiencies in digital literacy, with only 17% of Chinese and history majors mastering basic data analysis tools like Python and SPSS, thus struggling to meet the requirements of emerging roles in new media and market research. Regarding generic skills, 61% of résumés are rejected outright due to poor adherence to the STAR framework and irrelevant content, while 45% of interview failures result from disorganized communication and excessive anxiety. This ability misalignment stems from the traditional higher education model that prioritizes knowledge transfer over practical skill cultivation.

Secondly, the cut-throat competition in the job market has given rise to a widespread psychological crisis[5]. According to a 2024 China Youth Daily survey, 73.5% of graduates suffer from employment-related anxiety, with 28% experiencing clinically significant symptoms such as insomnia and anorexia. This stress stems from cognitive distortions and the cumulative impact of repeated setbacks. Data from a university career center shows that 52% of graduates who endure five or more interview rejections develop learned helplessness, marked by reduced job-seeking motivation and low self-esteem. Additionally, the prevalence of idealized success stories on social media intensifies feelings of inadequacy, with 24% of graduates reporting peer-pressure-induced depressive states.

Thirdly, systemic deficiencies in career preparation and information asymmetry lead to confusion and poor decision-making. MyCOS Institute research indicates that 68% of students remain in a state of occupational uncertainty until their senior year, with 79% having only a vague understanding of job requirements (focusing on abstract concepts like stability and high pay) and less than 21% grasping specific skill needs. This information gap results in extreme behaviors: 142 résumés are submitted per student on average, but only 30% are well-targeted, while 19% of liberal arts students avoid digital roles due to programming fears. Moreover, 94% of universities do not include industry trend analysis in mandatory courses, leaving students without the foresight needed for sound career choices.

These three challenges form a mutually reinforcing loop: skill deficiencies reduce job prospects, repeated failures heighten psychological distress, anxiety impairs rational planning, and unfocused preparation further widens ability gaps. Addressing this requires a coordinated "education-market-psychology" support system. Universities should design an integrated curriculum combining professional knowledge, digital skills, and professional competencies; enterprises ought to offer

more immersive, long-term internships; and mental health support must be integrated throughout the job-seeking journey. Only through such comprehensive measures can the cycle of challenges be broken and graduates be better equipped to succeed in the labor market.

4. “Trinity” Collaborative Cultivation Mechanism

In education, there exists a theoretical framework known as Competency-Based Education[6] and collaborative development, which emphasizes a market-oriented approach with competency development at its core. It requires that the educational process be closely aligned with the hard skills (disciplinary knowledge and technical expertise) and soft skills (generic capabilities and professional dispositions) demanded by target occupations. Universities, faculty, and students constitute the triadic subjects of talent development, and through mutual collaboration and resource complementarity, they jointly enhance graduates’ employability. The core objective is to construct a "trinity" competency-development system, to cultivate a composite competitiveness that integrates domain-specific hard skills, practical experience, psychological resilience, and soft skills, thereby facilitating graduates’ smooth transition from "campus members" to "workplace professionals". This is achieved via top-level design and resource integration at the institutional level, instructional innovation and capability leadership at the faculty level, and proactive adaptation and self-empowerment at the student level.

4.1 Systemic Institutional Support

In the context of increasingly severe employment conditions, universities, as the core organizers and resource allocators of employment education, must adopt a systematic approach. By implementing integrated reforms encompassing "systems, curricula, platforms, and services," they can construct a comprehensive support system to enhance graduates' employability. Regarding curriculum system optimization, modular design guided by market demands should be advanced. This involves not only strengthening the alignment between professional courses and industry development but also emphasizing the coordinated cultivation of general abilities and interdisciplinary literacy. In the design of professional courses, active alignment with industry standards is required. Collaboration with industry associations to formulate position-ability lists is essential, supplemented by the targeted addition of practical modules such as industry frontiers and technology applications. For instance, computer science programs should incorporate courses on AI ethics and big-data practical operations, while business programs should embed practical skills like digital marketing and financial data analysis. These measures ensure that teaching content remains synchronized with evolving position requirements. Simultaneously, general courses should reinforce the cultivation of universal skills. Courses such as career planning and employment guidance should be designated as compulsory, alongside electives like "Data Analysis Basics," "Business Communication", and "Psychology Basics" to address the traditional overemphasis on specialization at the expense of comprehensiveness. Furthermore, interdisciplinary cultivation models such as "major + minor" courses and micro-majors should be promoted to nurture versatile talents capable of adapting to emerging positions.

The construction of practical teaching platforms serves as a pivotal link between campus and workplace environments, necessitating a shift from simulated training to deep integration with real-world scenarios. Universities should deepen school-enterprise collaboration by co-establishing industry colleges and customized internship bases with leading companies in various sectors. Examples include Huawei ICT Academy and Tencent Digital Media Academy. These partnerships facilitate the involvement of corporate engineers in curriculum design and enable them to directly guide students in undertaking authentic R&D tasks, thereby achieving seamless alignment between

teaching content and enterprise projects. In terms of teaching methodologies, the project-based learning model can be adopted. By leveraging real-world enterprise challenges as drivers, students can enhance their applied skills through the process of solving practical problems. Concurrently, the on-campus practical system must be refined. Initiatives such as opening laboratories and organizing academic competitions provide additional opportunities for hands-on learning. For example, the graduation projects of engineering students can be designed in response to enterprise needs, while participation in competitions like "Internet +" and "Challenge Cup" fosters project experience and teamwork capabilities through task-driven approaches.

Moreover, universities need to enhance their employment support systems, focusing on psychological adjustment and precise resource matching to deliver comprehensive, personalized empowerment services. Employment guidance services should adhere to a whole-process mechanism, offering phased support that includes career enlightenment, skill training, internship recommendations, and job-seeking counseling, along with tailored advisory services. Specialized interventions, such as workshops on clarifying career values, can be implemented to address the phenomenon of "slow employment." In the realm of mental health, courses on occupational psychological adjustment should be introduced. These courses, delivered through group counseling and one-on-one psychological consultations, aim to alleviate employment-related anxiety. Additionally, cultivating psychological resilience should be integrated into routine education. Furthermore, universities must consolidate both on-campus and off-campus resources to establish digital employment platforms. These platforms can deliver precisely targeted position information, while collaborations with local governments can expand grassroots employment channels, ultimately providing students with diverse career pathways.

4.2 Innovation-Oriented Pedagogical Leadership

In the process of higher education reform, teachers, as the direct implementers of teaching reform, bear the critical mission of integrating the cultivation of employability into daily instruction. This necessitates a fundamental transformation in their teaching philosophies and methodologies—from traditional knowledge transmission to inquiry-based pedagogy. Regarding teaching methods, educators can actively incorporate problem-based learning and real-world corporate case studies. By guiding students to analyze the essence of problems and explore solutions in group settings, these approaches foster critical thinking and the capacity to address complex challenges. Simultaneously, interactive classroom designs such as organizing group discussions, role-playing exercises, and similar activities should be expanded. These methods enable students to refine their communication skills and strengthen teamwork awareness through the exchange of diverse perspectives and contextual simulations. Furthermore, to transcend the spatiotemporal constraints of conventional classrooms, teachers should proactively integrate high-quality online resources. Leveraging MOOCs platforms to access cutting-edge knowledge and utilizing virtual simulation experiment platforms for practical training are key steps. The blended teaching model should also be promoted, including the creation of concise skill-focused micro-courses. These resources allow students to consolidate learning materials at their own pace, catering to diverse learning needs.

The transition toward a "dual-qualified" (theory- and practice- proficient) teaching model represents a pivotal breakthrough in enhancing students' practical competencies. Teachers must not only possess solid theoretical foundations but also master cutting-edge practical skills relevant to their industries. On one hand, teachers should take the initiative to leave the campus and enter enterprises, and thus their knowledge systems can keep pace with the latest technologies advancements and actual job requirements by establishing a system of teachers' job rotation in enterprises and obtaining authoritative industry certifications. Concurrently, experienced corporate

professionals should be recruited as part-time instructors to teach practice-intensive courses, directly conveying authentic workplace experiences and position-specific expectations to students. To safeguard the effectiveness of this transition, universities can develop rigorous assessment mechanisms for teachers' practical capabilities. Metrics such as industry experience, outcomes of student project guidance, and other relevant achievements should be incorporated into promotion evaluations and performance appraisals. Such incentives motivate teachers to proactively enhance their practical teaching proficiency.

Given the significant individual differences among students, teachers must also provide precisely tailored, personalized guidance. Through systematic observation and assessment, educators can design differentiated cultivation plans based on factors such as students' academic orientations, employment goals, and personality traits. For example, students aiming for postgraduate studies might receive targeted training in literature review techniques and participation in research projects, whereas those oriented toward immediate employment could focus on practical skills like resume optimization, interview simulation, and professional etiquette. Additionally, dynamic student development portfolios should be established for each learner. These records track their evolving capabilities, documenting details such as internship experiences, acquired skill certifications, and outcomes of project participation. Based on these records, guidance strategies can be continuously adjusted to ensure students receive support aligned with their evolving needs at each stage. This personalized approach not only better accommodates students' diverse developmental requirements but also effectively enhances their employability, empowering them to stand out in competitive job markets.

4.3 Students' Holistic Self-Directed Development

As the primary agents in their own employment, students serve as the core executors in enhancing their employability. They must fully leverage their agency to effectively transform the diverse resources and support provided by universities, instructors, and society into personal competitiveness. Firstly, students need to break away from passive decision-making pattern, do not follow trends or blindly imitate others, and instead adopt a proactive approach. By utilizing scientific assessment tools (e.g., Holland's Vocational Interest Test, MBTI personality analysis) and engaging in active self-exploration, they can define clear career development paths aligned with their interests and abilities. Simultaneously, practical opportunities like internships, part-time jobs, or extracurricular activities enable students to preview the responsibilities and environments of target positions in advance. This experiential validation of career suitability helps avoid blind conformity or reactive choices. Cultivating this proactive planning mindset empowers students to seize initiative in the job-seeking process and improves the precision of their career trajectories.

In terms of professional skill development, students must strategically enhance the core competencies required by their target industries. For instance, liberal arts students aiming to enter data analysis or digital marketing fields should focus on acquiring foundational Python programming skills, data visualization tools, or social media operation techniques. Engineering students, on the other hand, need to master specialized applications such as CAD drafting and engineering simulation softwares. Obtaining authoritative industry certifications is another critical pathway to validating capabilities. Examples include accounting majors pursuing Certified Public Accountant credentials, education majors earning teaching qualification certificates, and technical-role students attaining industry-recognized accreditations like Huawei Certified Network Engineer. These certifications not only strengthen competitiveness in job applications but also demonstrate mastery of professional standards. Furthermore, participating in research projects or academic competitions serves as an effective means of accumulating project experience. For example, joining

a faculty-led research team to co-author scholarly publications, or collaborating in teams for competitions like "Internet +" and "Challenge Cup" to secure awards or patents, can cultivate research capabilities and innovative thinking. Such experiences create distinctive advantages on resumes, directly addressing employers' emphasis on practical skills.

Beyond technical expertise, the cultivation and reinforcement of soft skills are equally indispensable. Students should capitalize on on-campus opportunities to develop essential universal competencies, including communication, collaboration, leadership, and stress resilience. For example, taking on leadership roles in student organizations or clubs helps refine teamwork coordination and a sense of responsibility. Actively engaging in collaborative settings, such as group assignments in coursework or interdisciplinary competition teams, teaches students to listen to diverse viewpoints, negotiate consensus, and execute team tasks efficiently. To address common workplace challenges like presentation anxiety or adaptation barriers, students can participate in mock interviews to hone verbal expression and on-the-spot responsiveness, attend professional etiquette training to understand industry norms, or even proactively simulate workplace communication scenarios during routine studies. These efforts gradually foster a confident and composed professional mindset. Through goal-driven, self -directed learning and holistic self-improvement, students can transform external educational resources and practical opportunities into internalized capability reserves. Ultimately, this process enables them to develop a composite competitiveness closely aligned with market demands, laying a solid foundation for seamless integration into the professional world.

5. Conclusions

This study highlights the post-pandemic job market's volatility and structural shifts, framing graduate struggles as symptoms of education-market misalignment. The proposed "trinity" collaborative cultivation mechanism—combining institutional reforms, pedagogical innovation, and student development—offers a holistic solution. By deepening university-industry ties, digitizing career services, and normalizing mental health support, this model can dynamically align graduate competencies with labor market needs, supporting national strategies for talent development and economic growth.

Acknowledgements

This work was supported in part by the Ministry of Education University-Industry Collaborative Education Program "Research on Virtual Simulation of Energy Internet" (No. 231103356141625).

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