

Research on the Structural Contradictions in Talent Supply and Demand in Donghu Technological Development Zone

Xiaoyu Huang*, Jing Sun, Jingwen Xu, Xiaoqing Yang

School of Business Administration, Hubei University of Economics, Wuhan, Hubei, China

*Corresponding author: Xiaoyu Huang

Abstract

Driven by innovation, there is a widespread structural contradiction between "difficult recruitment for enterprises" and "difficult employment for graduates" in high-tech industrial agglomeration areas. Taking East Lake High-tech Zone (Optical Valley) as an example, through the three-dimensional analysis framework and mixed research method, this paper finds that the root of the contradiction is not the mismatch of professional names, but the disconnection between learning and application and the lack of practical ability. The fundamental reason is that there is a significant time lag between the iteration speed of industrial technology and the renewal of university curriculum.

Keywords

Structural Contradiction; Disjunction between Learning and Application; Industrial Technology Iteration; East Lake High-tech Development Zone.

1. Research Background and Problem Statement

In the stage of high-quality development, Wuhan Optics Valley, as a national-level high-tech zone, exhibits strong demand for talent alongside an abundant supply. However, the contradiction between supply and demand has become increasingly prominent: enterprises face difficulties in recruiting high-end technical and interdisciplinary talent, while graduates struggle to find competitive jobs that match their academic backgrounds.

2. Research Design

2.1. Data Sources and Collection Procedures

2.1.1. Questionnaire Method

The survey targeted 340 graduates from the past three years in Wuhan and its surrounding areas, covering three types of institutions: "Double First-Class" universities, application-oriented undergraduate colleges, and vocational colleges. The questionnaire collected data on basic information, self-assessed skills, and employment adaptability, in order to characterize the structural features of the supply side. Among the sample, application-oriented undergraduate institutions accounted for the highest proportion (47.06%), followed by vocational colleges (28.82%) and "Double First-Class" universities (24.12%), which is largely consistent with the structure of higher education in Hubei Province. In terms of graduation year, the class of 2025 accounted for 38.82%, the class of 2024 for 37.65%, and the class of 2023 for 23.53%. Graduates from the most recent two cohorts have relatively fresh memories, and their feedback closely reflects the current reality.

2.1.2. Semi-structured Interview

Due to difficulties in collecting enterprise questionnaires, the method was changed to in-depth interviews. The interviewees included three enterprise managers from key industries in Optics

Valley and three university teachers, aiming to identify the causes of the talent supply-demand contradiction and provide qualitative evidence. Although the sample size is small, information saturation has been reached.

During the interviews, the enterprise side focused on the characteristics of talent demand and evaluations of the current situation, while the teacher side focused on the gap between talent cultivation and market demand, as well as suggestions for collaboration. Each interview lasted approximately 30 minutes, and the entire process was audio-recorded and transcribed.

2.2. Construction of Analytical Dimensions

Table 1. Analytical Dimensions, Indicators, and Sources

Contradiction Dimensions	Measurement Indicators	Data Sources
Quantity Contradiction	Graduates' Perceived Employment Difficulty (Job Satisfaction, Starting Salary Competitiveness)	Questionnaire Q10 (Overall Satisfaction), Q9 (Starting Salary Competitiveness)
	Enterprises' Perceived Recruitment Difficulty (Recruitment Cycle, Proportion of Qualified Resumes)	Interview Q4.4 (positions difficult to fill), Q4.5 (recruitment cycle)
Structural Contradiction	Job-Major Match Rate	Questionnaire Q6 (Degree of Job-Major Match)
	Relevance of Course Content to Job Requirements	Questionnaire Q1 (Degree of Course-Job Relevance)
	Degree of Theory-Practice Disconnect	Interview Q2.4 (graduate skill match), Teacher Interview Q2.2 (gap between curriculum and industry needs)
Quality Contradiction	Satisfaction with Practical Ability	Questionnaire Q2 (Helpfulness of practical teaching), Q3 (Internship-job match)
	Skill Satisfaction	Questionnaire Q7 (Extent to which professional skills meet job requirements)
	Expectation Gap in Competence	Interview Q3.2 (Time for graduates to independently undertake tasks), Q3.4 (Evaluation of ability to solve practical problems)

Note: Interview question numbers refer to Appendix A (Teacher Side) and Appendix B (Enterprise Side). Questionnaire item numbers refer to Appendix C.

3. Analysis of Talent Supply and Demand in Donghu High-tech Zone

3.1. Analysis of the Current Situation of the Talent Supply Side

3.1.1. Quantity Dimension: Spatial Distribution and Professional Structure

In terms of workplace location, 22.35% of graduates worked in the core area of Optics Valley, 38.53% in other areas of Wuhan, 22.06% outside Hubei Province, and 17.06% in other cities within Hubei Province. The effectiveness of Optics Valley in retaining talent needs to be improved, indicating a spatial mismatch.

Cross-analysis reveals that vocational college graduates have the highest proportion remaining in Optics Valley (28.57%), indicating a relatively strong match with industrial demand. Among application-oriented undergraduate graduates, only 20.37% stayed in Optics Valley, while over 40% remained in other parts of Wuhan. Graduates from "Double First-Class" universities showed the highest propensity to work outside Hubei Province (31.71%), suggesting that

Optics Valley lacks sufficient for high-end talent. In terms of disciplinary structure, graduates with economics and management backgrounds accounted for the highest proportion (32.35%), while engineering (20.59%) and medical sciences (17.65%)-fields critical to Optics Valley's key industries-together constituted less than 40%. This indicates a pronounced mismatch characterized by a dominance of humanities and social sciences over science and engineering disciplines.

3.1.2. Structural Dimension: Job-Major Match and Course Relevance

A total of 43.24% of graduates experienced a job-major mismatch (18.53% completely mismatched, 24.71% somewhat mismatched), while only 12.65% reported a complete match. Compared with the national average mismatch rate of approximately 30%, the rate in Optics Valley is about 13 percentage points higher, indicating a waste of human capital. Regarding the relevance of course content to job requirements, 51.17% of graduates considered it irrelevant (20.29% very irrelevant, 30.88% somewhat irrelevant), while only 29.11% reported relevance. Even when the job title matched the major, curriculum lag remained a serious problem.

3.1.3. Quality Dimension: Practical Ability and Skill Match

Only 26.47% of graduates believed that practical teaching was highly helpful in adapting to work, while 45.29% considered it not very helpful (including 22.94% who responded "very inconsistent" and 22.35% who responded "somewhat inconsistent"). Moreover, 42.65% of graduates perceived a low level of internship-job match (18.53% very inconsistent, 24.12% somewhat inconsistent), with only 28.23% expressing satisfaction. This indicates significant deficiencies in the quality and relevance of university internships.

Furthermore, 45.30% of graduates reported that their professional skills were insufficient for job requirements (19.12% very inconsistent, 26.18% somewhat inconsistent), with only 32.65% expressing satisfaction. Nearly 70% rated their skills as average or below. This suggests that inadequate practical ability constitutes a major quality weakness on the supply side, reflecting a disconnect at the skill level.

3.1.4. Overall Fit and Job Satisfaction

A total of 50.29% of graduates perceived their starting salary as lacking competitiveness (20.88% very inconsistent, 29.41% somewhat inconsistent), reflecting insufficient returns in the supply-demand match. Furthermore, 45.59% of graduates felt that career development prospects did not meet their expectations (19.12% very inconsistent, 26.47% somewhat inconsistent), indicating a deficiency in growth opportunities (see Table 4-9 for detailed data). Graduate job satisfaction showed a polarized distribution: 42.36% held negative evaluations (18.24% very dissatisfied, 24.12% dissatisfied), while only 33.23% were satisfied or above.

Among the six dimensions assessed, development fit (47.36%) and compensation fit (45.00%) received the highest negative ratings. Overall, only 32.65% of graduates considered themselves a good fit for their jobs, while 43.53% perceived a poor fit. This suggests that graduates' greatest dissatisfaction lies with growth opportunities and financial returns, rather than the job itself. Even when skills match job requirements, limited career development and uncompetitive starting salaries may weaken retention intentions.

While national employment satisfaction among undergraduate graduates has been steadily increasing, reaching 81% for the class of 2024, the corresponding rate in the Optics Valley sample is only 33.23%, confirming that the talent supply-demand mismatch in Optics Valley has become quite severe.

3.2. Analysis of the Current Situation of the Talent Demand Side

According to the Hubei New Quality Productivity Human Resources Development Catalog (2026), the talent demand shares of the five key industries are as follows: optoelectronics and information (17.23%), new materials (14.68%), new energy and intelligent connected vehicles

(12.74%), high-end equipment (12.38%), and life and health (10.97%). Together, these five industries account for over 67% of total talent demand, while other traditional service and basic manufacturing industries account for 32.00%. As the core industry of Optics Valley, optoelectronics and information has the highest talent demand share, consistent with the industrial scale data presented earlier.

3.2.1. Quantity Dimension: Recruitment Difficulties and Supply Shortages

Enterprise recruitment difficulties are concentrated in three aspects. First, the qualified applicant rate for core technical positions is low. For roles such as chip design and AI algorithm, although there are numerous resumes, very few candidates are qualified, and most graduates cannot assume direct job responsibilities. Second, the recruitment cycle for hard-to-fill positions is long. The shortest time to hire an AI algorithm engineer is four months, while a chip design position remained open for five months before a single hire was made. The underlying reason is that over 40% of graduates self-assessed their skills as insufficient. Third, there is a severe shortage of high-end talent. Enterprises urgently need talent with project experience who can quickly become productive. Meanwhile, only 22.35% of graduates remain in the core area of Optics Valley, and more than one-fifth flow to other provinces. This talent outflows further exacerbates the difficulty local enterprises face in acquiring high-end talent.

3.2.2. Structural Dimension: Theory-Practice Disconnect as the Core Contradiction

The primary crux of the supply-demand contradiction lies in the disconnect between learning and application (theory-practice gap), rather than in a mismatch of job titles versus academic majors. [3]Enterprises report that graduates are not even proficient in basic development tools and require up to three months of training; 51.17% of graduates consider their coursework irrelevant to job requirements. The disciplinary structural mismatch further exacerbates the contradiction: enterprises urgently need engineering talent for roles such as chip design and AI algorithms, yet the supply side is dominated by economics and management graduates (32.35%), while engineering and medical sciences together account for less than 40%. In comparison, the Hubei New Quality Productivity Human Resources Development Catalog (2026) indicates that engineering-dominated industries such as optoelectronics and information, high-end equipment, and life and health collectively account for over 40% of talent demand. A pronounced disciplinary misalignment between supply and demand is therefore evident.

3.2.3. Quality Dimension: Practical Ability Shortcomings and Insufficient Competitive Advantage

Insufficient practical ability is consistently identified by all three parties (graduates, enterprises, and teachers) as the core quality shortcoming. Graduates are at a loss when facing real technical problems and lack engineering-oriented thinking. 45.29% of graduates believe that practical teaching is of limited help, and enterprises are forced to provide additional training. In terms of competitive advantage, graduates from Optics Valley do not possess a clear edge: 50.29% perceive their starting salaries as lacking competitiveness, and 42.36% hold negative evaluations of their jobs, reflecting their disadvantaged position in the job market.[4]

3.2.4. Industry-Education Integration Perspective: Time Lag and Insufficient Depth

There are two systemic causes of the talent supply-demand mismatch. First, technological iteration outpaces curriculum updating. AI technologies evolve approximately every six months, yet adjustments to university course syllabi require two to three years. The gap between the industry iteration cycle (approximately six months) and the curriculum update cycle (at least 18 months) is a factor of three, with 51.17% of graduates perceiving a curriculum-job disconnect. Second, the depth of industry-education integration is insufficient. Enterprise participation is characterized by high costs and long payback periods, limiting investment from small and medium-sized enterprises. Furthermore, there is no rigid assessment mechanism for

faculty engagement in industry practice. 42.65% of graduates perceive a low level of internship-job match, with students reporting that "internships are just doing odd jobs," while teachers lack the industry experience to provide effective guidance.

3.3. Comprehensive Diagnosis of the Talent Supply-Demand Contradiction

3.3.1. Comparison of Core Manifestations between the Supply and Demand Sides

Table 2. Comparison of Core Contradictions Between Supply and Demand Sides

The dimension of contradiction	Core performance on the supply side	Core performance on the demand side
Contradictory numbers	Only 22.35% remain in the core area of Optics Valley, while 22.06% flow outside the province; There is an oversupply of economics and management, while engineering and medical departments are insufficient	Recruitment for core technical positions is difficult, with a > cycle of 4 months; Insufficient supply of high-end talent; There is a shortage of engineering medical departments
Structural contradictions	Major mismatch rate: 43.24%; 51.17% believe the course content is irrelevant to the position	Major alignment is not the main issue; the disconnect between learning and application is the core; Mismatch in professional structure
Quality conflicts	45.30% lack sufficient skills; 45.29% have limited help from practical teaching; 50.29% have uncompetitive starting salaries	Practical ability is the biggest weakness, lacking problem-solving skills; Optics Valley graduates do not have prominent competitive advantages
Integration of industry and education	Course content is outdated; Low quality of internships; Teachers lack industry experience	Technology iteration outpaces course updates (time difference); Insufficient depth of school-enterprise cooperation, while the school is hot and the enterprise is cold

Table 2 The focus of the talent supply and demand conflict in Optics Valley is not the total quantity, but the structure (mismatch between majors and disconnection between learning and application) and quality (lack of practical ability). Main conclusions: First, the core contradiction is the systematic disconnect between the training process and industry demand. Second, quantitatively, there is a spatial mismatch (only 22.35% of students are in Optics Valley) and a professional mismatch (oversupply in economics and management, insufficient engineering and discipline). Third, structurally, the core is a disconnect between learning and application, with more than half of graduates feeling the courses are disconnected. Fourth, in terms of quality, it is reflected in insufficient practical ability (over 45% self-rated as lacking sufficient skills). Fifth, in terms of causes, the time gap between monthly iterations of industrial technology and annual course updates is a systemic problem.

3.3.2. Perceived Supply-demand Ratio at the Quantitative Dimension: The Perceived Misalignment between Supply and Demand

Using perceptual supply-demand ratio analysis, conclusions are drawn by comparing the subjective perceptions of the job market between supply and demand sides. A ratio greater than 1 indicates optimism on the supplier side and pessimism on the demand side (graduates perceive it better than the company); less than 1 means the buyer is optimistic and the supplier is pessimistic (the company perceives better than graduates); 1 means both sides perceive it equally.

$$\text{Perceived Supply} - \text{Demand Ratio} = \text{Graduates' job market optimism} / \text{Firms' satisfaction with talent supply} [7]$$

From the supply side: graduates are generally pessimistic, with only 33.23% satisfied with their jobs, 50.29% believing starting salaries lack competitiveness, and a major-related rate of 33.53%. Demand side: Companies are equally pessimistic, with core technical positions hiring over four months and very few qualified candidates.

Both sides need to be in the pessimistic quadrant, forming a "double pessimism" perception pattern. This shows that the problem is not the total quantity, but the mismatch between the quality and structure of supply and demand.

3.3.3. Structural Dimension Supply-demand Gap: Mismatch between Majors and Disconnect between Learning and Application

The structural dimension contradiction is divided into two levels: first, the macro mismatch of professional categories, with economic and management accounting for 32.35% on the supply side, while engineering and medical fields together account for less than 40%, while demand-side demand for science and engineering industries exceeds 40%; Second, there is a micro-level disconnect in course content: 51.17% of graduates believe courses are unrelated to the position, and companies report that graduates are not even proficient in basic tools. The key contradiction is not the name of the major, but the gap between the teaching content and job requirements.

Cross-analysis: Among graduates with completely unrelated fields, 65.07% had negative evaluations of their jobs. But even among graduates who are perfectly suited, 41.86% are still dissatisfied, while 39.53% are satisfied. This indicates that professional alignment does not automatically lead to job satisfaction-if the curriculum is disconnected from the job, graduates will still experience negative outcomes due to lack of skills and difficulty adapting. This is precisely the reflection of the "failure to match requirements and abilities" in the human-job fit theory: the practical skills required by the position have not been effectively trained, resulting in the dilemma of "matching the major but not the ability."

3.3.4. Supply-demand Gap in the Quality Dimension: Shortcomings in Practical Capability and Insufficient Competitive Advantage

The contradiction in the quality dimension is mainly reflected in insufficient practical ability. 45.30% self-assessed their skills as not meeting requirements, 45.29% felt that practical teaching was of limited help, and 42.65% felt the internship was a low fit. Companies point out that graduates lack problem-solving skills and engineering thinking, and teachers admit there is a gap between employment and competence. Additionally, only 22.35% remain in the core area of Optics Valley, while 22.06% flow outside the province. This is a disconnect between skill levels in requirement and ability matching.

3.3.5. Supply-demand Matching Radar Chart

To visually display the supply-demand gap (see Table 3), this paper draws a six-dimensional radar map (Figure 4-2). Supply-side scores are based on questionnaire data, ranging between 22% and 34%; Demand-side expectations are based on enterprise interviews and range between 50% and 80%. The logic of the various parties is as follows.

Professional relevance (70%) is the basic threshold for enterprises;

Course relevance (80%) is expected by enterprises to have a course update cycle of no more than one year;

Practical Ability (75%): Enterprises expect graduates to possess basic practical skills;

Skill satisfaction (80%) on the enterprise side reflects graduates' lack of proficiency in development tools and long training cycles;

Starting salary competitiveness (60%) is considered by companies to have no obvious advantage over Optics Valley graduates compared to out-of-town universities; The proportion of people staying in Wuhan (50%) is expected by companies to have more local talent stay in Optics Valley.

Table 3. Supply-demand matching dimensions and gaps

Dimension	Actual score	supply-side Demand-side expected value (valuation).	The gap
Professional relevance	33.53%	70%	-36.47%
Course relevance	29.11%	80%	-50.89%
Practical ability	26.47%	75%	-48.53%
Skill satisfaction	32.65%	80%	-47.35%
Competitive starting salary	22.64%	60%	-37.36%
and retained the Han proportional proportion	22.35%	50%	-27.65%

Note: Supply-side scores come from questionnaire data; The demand-side expectations are estimates based on enterprise interviews in this article and are for reference only.

The three areas with the largest supply-demand gap are, in order, course relevance at -50.89%, practical ability at -48.53%, and skill satisfaction at -47.35%. All three are related to the university training process, indicating that the overall disconnect between talent cultivation and industry demand is the main reason for the contradiction.

3.4. Analysis of the Causes of Talent Supply and Demand Contradictions

3.4.1. University Training Process: Lagging Courses, Weak Practice, and Limited Faculty

The primary reason is that course updates lag behind technological changes: industries iterate monthly, university courses are revised annually, causing more than half of graduates to feel disconnected from courses. The secondary reason is weak practical teaching and lack of engineering thinking training. Nearly half believe practical teaching is limited and internships are common miscellaneous tasks, with the main issue being that practice is mostly confirmatory experiments and lacks real project training; Due to cost and confidentiality concerns, companies find it difficult to let interns engage with core business. Another reason is that university teachers lack industry experience: enterprise practice experience is not a mandatory metric in assessments, and most teachers lack enterprise experience, making it difficult to combine theory with practice in teaching.

3.4.2. Industry-education Collaboration Mechanism: Time Difference and School Heat and Enterprise Coolness

There is a natural time gap between the long talent training cycle and the rapid changes in industry demand: university programs take two to three years, while industry demands change every six months to a year, resulting in a slower talent output. Another issue is that school-enterprise cooperation is "hot and cold between schools and enterprises." SMEs believe that industry-education integration is costly and returns on investment slowly, so cooperation often remains at the level of signing agreements. The key to solving this lies in reducing the cost of enterprise participation. The government needs to use incentives such as tax reductions, project subsidies, and preferential awards to ensure that short-term profits for enterprises do not fall below their input costs, thereby forming sustainable synergistic momentum.[5]

3.4.3. Policy and Institutional Environment: Limitations in Talent Retention and Discipline Guidance

The current talent retention policy has limited effect, with only 22.35% of graduates staying in the core area of Optics Valley, and more than one-fifth going out of the province. [2] Policies such as talent apartments and living subsidies have failed to fundamentally solve the issues of household registration and housing costs, resulting in a serious outflow of local talent. The adjustment of discipline and major structures is slow, with an oversupply of economics and management and a shortage of engineering disciplines, but universities are constrained by hard constraints such as faculty, school conditions, and enrollment quotas, making it difficult to keep pace with industrial changes.

3.4.4. Graduate Personal Level: Lack of Proactive Learning Awareness and Industry Awareness

Issues at the graduate level should not be ignored either. Interviews found that many graduates lack proactive learning awareness during their studies, pay insufficient attention to industry trends and job skills, and rely excessively on classroom teaching. When industrial technology iterates rapidly while curriculum updates lag, whether students can learn proactively becomes the key to bridging the gap between learning and application. The survey shows that the lack of self-directed study habits not only reflects structural contradictions but also further exacerbates them.

4. Analysis of Countermeasures to Resolve the Talent Supply and Demand Contradiction in Donghu High-tech Zone

4.1. Cracking Path

Resolving the talent supply-demand contradiction requires joint efforts from both supply and demand. This article proposes countermeasures from four perspectives: universities, enterprises, government, and graduates. It should be noted that the countermeasures aimed at universities, enterprises, and governments serve as directional inspiration and promotion ideas, while suggestions for graduates are specific and feasible measures. The two differ in nature, hence the different names.

4.2. Countermeasures and Promotion Ideas for Universities

The study found that 51.17% of graduates believe courses are disconnected from their positions, and 45.29% think practical teaching is limited, with the root cause being slow course updates and shallow practical teaching. Suggestion: Establish flexible curriculum fine-tuning mechanisms to shorten the time lag between technology and teaching; Increase project-based teaching and bring real enterprise problems into the classroom; Include teacher industry services in professional title evaluation. Implementation challenges: lengthy approval processes, teacher scheduling conflicts, and high management costs for corporate part-time mentors. [6] The promotion is divided into three stages: in the near term (1-2 years), select a small number of pilot programs, update 2-3 course cases and training projects each academic year, and encourage teachers to practice in enterprises during winter and summer breaks; Mid-term (2-3 years) summarizes experiences and expands scope; A dynamic adjustment mechanism is formed over the long term (3-5 years).

4.3. Enterprise-side Strategies and Promotion Strategies

Enterprise interviews found that the main difficulties SMEs face in industry-education integration are high costs and long payback cycles, resulting in a situation where "schools are hot, enterprises are cold." 42.65% of graduates believe internship compatibility is not high. It is recommended that SMEs participate from small angles: short-term visits and internships, and

use small enterprise projects as graduation project topics. Enterprises with the necessary conditions may jointly establish order-based classes or industry colleges; For those with limited investment, joint training can be conducted under the leadership of industry associations or parks. Internships should expose graduates to real business and avoid purely transactional work. The difficulty lies in the potential spillover of talent benefits, requiring government subsidies, tax reductions, and other incentives. Deep enterprise participation also requires proactive connections from universities and assistance from industry associations, which is difficult for enterprises to sustain on their own.

The promotion approach is divided into three stages: in the near term (1-2 years), start with low cost, such as visits and internships, graduation projects, and 3-5 years of joint university connections between SMEs and universities; In the mid-term (2-3 years), explore long-term cooperation models, with joint training for leading enterprise order classes and SMEs, and industry associations establishing training alliances; In the long term (3-5 years), a stable school-enterprise cooperation ecosystem will be formed, institutionalizing joint training.[1]

4.4. Government-side Countermeasures and Promotion Approaches

Industrial technology iterates about every six months, while university courses take 18 months—a difference of roughly three times—leading to lagging talent cultivation. Only 22.35% of graduates remain in the core area of Optics Valley, with talent outflow making recruitment more difficult. Recent low-cost measures include: publishing a directory of scarce talents, building an industry-education information platform, and establishing the "Liuguanggu Employment Subsidy." Medium- and long-term directions: early warning mechanisms for disciplines and majors, special funds for industry-education integration. Implementation Difficulties: Involves multi-department coordination; Funds and tax reductions must be included in the fiscal budget, resulting in lengthy approvals; Discipline adjustments require continuous data tracking and are unlikely to yield short-term results. Promotion approach: In the near term (1-2 years), implement shortage catalogs, information platforms, and employment subsidy pilots; In the mid-term (2-3 years), explore early warning mechanisms, publish warning reports, and strive to establish special funds; In the long term (3-5 years), institutionalized talent policies will be formed, enabling the normalization of information platform operations.

4.5. Graduate Side Countermeasures, Suggestions, and Promotion Ideas

When curriculum updates lag behind technological iterations, whether graduates can actively learn becomes key to narrowing the gap between learning and application. Company interviews show that some graduates rely too much on the classroom and neglect extracurricular expansion. It is recommended that students during their studies browse job websites to compare skill gaps, use online resources to supplement practical skills, and complete an online skills course or an independent project each semester; During internships, priority is given to small and medium-sized enterprise positions where they can be exposed to complete workflows; Presenting independent projects in interviews is more persuasive than verbally explaining learning ability. Improvements at the graduate level depend on individual initiative and are highly feasible. Universities need to provide industry information channels, enterprises should clarify skill requirements, and industry-education information platforms can reduce information asymmetry. Promotion approach: In the near term (1-2 years), universities will regularly push job skill requirements. Students will complete skill learning or independent projects each semester, and internships will strive to participate in core business activities; In the middle term (2-3 years), a campus culture combining self-directed learning and project-based practice is formed, showcasing outstanding cases; In the long term (3-5 years), proactive learning and matching with industry needs will become the norm, effectively bridging the gap between learning and application at the individual level.

5. Conclusion

In summary, the Donghu Technology Development Zone shows a clear structural imbalance in talent supply and demand. Under the backdrop of innovation-driven development, the dual difficulties of recruiting workers for high-tech zone enterprises and employment difficulties for college graduates coexist, which is not simply a misaligned issue of major settings. From the perspective of supply and demand, industrial technology iteration continues to accelerate, while university talent training systems lag behind. There is a significant time lag between curriculum design, practical teaching, and regional high-tech industry development, directly causing a disconnect between theoretical reserves and practical job requirements, making graduates' comprehensive practical abilities difficult to meet the actual employment requirements of enterprises. Resolving this structural contradiction cannot rely solely on adjusting the major catalog; it is even more necessary to promote collaborative education between schools and local communities, establish a dynamic feedback mechanism for industrial demand, accelerate reforms in university curriculum systems and practical training models, shorten the adaptation cycle between talent cultivation and industrial development, and achieve precise matching of talent supply and industrial demand in Donghu High-tech Zone through deep integration of industry and education, providing sustainable talent support for high-quality regional innovation and development.

Acknowledgments

This paper is a key project result of the Higher Education Science Research Planning Project of the China Higher Education Society, project number: 25JY0203.

References

- [1] Zeng, X., Wang, L., & She, Y. Y. (2025). Research on "Four-Chain Integration" innovative talent training based on the AGIL model-A case study of the "Wuhan·China Optics Valley" industry-education consortium. *Industrial Technology and Vocational Education*, 23(1), 34–40.
- [2] Chen, B. (2022). Challenges and suggestions for innovative construction of the science and technology innovation corridor in the digital economy era-A case study of the Guanggu Science and Technology Innovation Corridor. *Wuhan Social Sciences*, (4), 15–21.
- [3] Chen, Y., Zhu, M. K., & Liu, K. (2019). Matching the structure of talent supply and demand under the background of industrial structure adjustment-A case study of universities in Henan Province. *Western Quality Education*, 5(18), 162–163, 165.
- [4] Miao, Z. Y. (2025). Causes and countermeasures of structural employment conflicts among college graduates. *China College Student Employment*, (1), 20–24. <https://doi.org/10.20017/j.cnki.1009-0576.2025.01.003>
- [5] General Office of the State Council. (2017). Several opinions of the General Office of the State Council on deepening industry-education integration (Document No. Guobanfa(2017)95). http://www.gov.cn/zhengce/content/2017-12/19/content_5248564.htm
- [6] Hu, G. Z. (2025). Resolving structural contradictions in college student employment through supply-side reform of talent training. *Journal of Hubei University of Science and Technology (Humanities and Social Sciences Edition)*, 42(6), 41–44.
- [7] Huang, F. S. (2019). Research on talent bottlenecks in Wuhan · China Optics Valley Industrial Park. *Think Tank Times*, (51), 5–6.