Original Research Article

Research on the path of comprehensive improvement of talent cultivation quality in private universities

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Abstract: Private colleges and universities are an important force in China's higher education system, but they still face outstanding problems such as ambiguous positioning, resource constraints, weak teachers and imperfect evaluation mechanisms in talent cultivation. Aiming at the problems of lagging industrial demand in professional settings, insufficient depth of school-enterprise cooperation and lagging feedback in teaching, this study puts forward a systematic improvement path: building an ecological system of industry-education integration, innovating the "four-step progression" practice model, promoting digital transformation and faculty reengineering, and guaranteeing the implementation of the system through the mechanisms of governance reform, resource sharing and developmental evaluation. Implementation is guaranteed through mechanisms such as governance reform, resource sharing and developmental evaluation. Practice shows that by accurately matching industrial demand, optimizing resource allocation and strengthening the closed loop of quality, private colleges and universities can effectively improve the employment quality and social adaptability of graduates, and provide high-quality applied talents to support regional development. The study provides operable solutions for private colleges and universities to crack development bottlenecks and realize connotative transformation.

Keywords: Private universities; Talent training quality; Digital transformation

As an important part of China's higher education system, private colleges and universities have played an important role in expanding the supply of educational resources and promoting educational equity. However, subject to the constraints of schooling history, resource endowment and social cognition, the quality of talent cultivation still needs to be systematically improved. This paper discusses the feasible path to improve the quality of talent cultivation from the operating characteristics of private colleges and universities.

1. The core challenges of talent cultivation in private colleges and universities

1.1. Positioning ambiguity: Lack of connotation and convergence dilemma of applied education

Some private colleges and universities are stuck on the surface of "skill training" in the cultivation of applied talents, and have not constructed a trinity cultivation framework of "knowledge-capability-quality". Blindly imitating the discipline-oriented mode of public colleges and universities has led to a disconnect between professional settings and regional industrial needs. For example, some institutions still focus on traditional liberal arts majors, while the construction of majors in emerging fields such as artificial intelligence and cross-border e-commerce is lagging behind, resulting in structural unemployment among graduates. In addition, the goal of talent cultivation lacks hierarchy, neither the differentiated positioning of higher vocational and undergraduate levels, nor the formation of "general application-oriented talents" and "advanced innovative talents" streaming training mechanism, which limits the development space of outstanding students.

1.2. Resource constraints: Insufficient investment and lagging behind in industry-education synergy

According to the Ministry of Education's data, the average per-student funding of private colleges and universities is only 1/3-1/2 of that of public colleges and universities (2022), which directly restricts the updating

of hardware and facilities and the development of curricula. For example, the updating cycle of practical training equipment in the fields of intelligent manufacturing and big data analysis is generally more than 3 years, far behind the speed of industrial technology iteration (18 months on average).48 At the same time, school-enterprise cooperation mostly stays at the level of agreements, and only 28% of enterprises are deeply involved in curriculum design (2023 Association for Private Education report), leading to a mismatch between practical teaching and the real needs of enterprises.

1.3. Imbalance in the structure of faculty members: dual-teacher type shortage and talent loss

Less than 40% of the full-time teachers in private colleges and universities are "dual-teacher" teachers with industry experience, and most of them are concentrated in traditional engineering fields, and there is a particular lack of teachers in emerging cross-disciplines.911 It is difficult to bring in high-level talents, and the proportion of teachers with titles of associate professor or above is less than 15%, which is far lower than the 45% in public colleges and universities.13 In addition, the mobility of teachers is high, and the average annual turnover rate of teachers is high, which is much lower than the 45% in public colleges and universities. mobility is high, with an average annual turnover rate of 12%-15%, and the stability of the teaching team is poor, which affects the coherence of the courses.811

1.4. Lack of closed-loop quality: Fragmentation of monitoring and single evaluation

Only 56% of the private colleges and universities have set up a perfect monitoring system for the quality of teaching (China Association for Private Education, 2024), and most of them are limited to the superficial indexes such as the classroom attendance and the examination results, and lack of monitoring of the "learning process-competence growth", "learning process-ability growth", "learning process-ability growth" and "learning process-ability growth". Most of them are limited to superficial indicators such as classroom attendance and examination results, and lack tracking of the whole chain of "learning process - ability growth - employment quality". For example, only 32% of institutions use big data to analyze students' learning trajectories, and teaching feedback lags behind actual needs. The evaluation system overly relies on the employment rate (weighting over 60%) and ignores value-added indicators such as employer satisfaction and career development potential, resulting in a disconnect between talent cultivation and social demand.

2. Practical path of quality improvement

2.1. Reconstruction of talent cultivation ecosystem

Through the establishment of a three-tier response mechanism of "Regional Industrial Demand Big Data Analysis→Professional Competency Matrix Modeling→Dynamic Adjustment of Curriculum System", we can realize the precise docking between professional construction and industrial development. For example, a private college in the automobile industry cluster area reconstructed the curriculum module of vehicle engineering based on the certification standard of engineers of automobile enterprises, increased the proportion of cutting-edge content such as intelligent network technology to 35%, and increased the employment rate of graduates' counterparts by 22%. At the same time, focusing on regional key industries to build "core specialties + support specialties + extended specialties" chain of professional groups, such as cross-border e-commerce professional group integration of international trade, data analysis, cross-border logistics and other curriculum resources, forming a talent training system covering the entire industry chain of e-commerce.

2.2. Innovative industry-Teaching integration model

Builds a four-stage progressive practice system of "cognitive internship → project practical training → on-

the-job practice → innovation and entrepreneurship", and a private university in Zhejiang built a "Cloud Intelligence Workshop" with Aliyun, with students participating in the development of real projects of enterprises for more than 200 projects per year on average, and the rate of conversion of the project results reached 18%. Upgrading industrial colleges to 2.0 mode, a university in Guangdong introduced real production lines to create an integrated teaching-production-R&D space, with 40% of the courses jointly developed by schools and enterprises, and the utilization rate of the equipment increased to 85%, realizing the deep integration of "classroom as workshop and homework as product".

2.3. Enabling digital transformation

Developing a modularized curriculum system of "micro-certification + credit bank", builds a virtual simulation experimental resource base covering intelligent manufacturing, digital marketing and other fields, and increases the efficiency of students' skill mastery by 40% through practical training courses using XR technology. A big data monitoring platform has been built to realize visual diagnosis of cultivation quality through the linkage of classroom behavior analysis, learning track tracking and employment quality feedback. The response speed of teaching problems has been increased by 60% after the application in one school, and the cycle of curriculum optimization has been shortened to 3 months.

2.4. Faculty re-Engineering project

Implemented the dual-track training program of "enterprise workstation + teaching ability workshop", requiring professional teachers to practice in enterprises for no less than 12 months in every 5 years, and the qualified rate of teachers' practical teaching ability increased from 58% to 89% after the participation of a certain school. Establishing a flexible mechanism for attracting wisdom, through the mode of "industrial professors" and "weekend engineers", introducing enterprise technical backbone to participate in the design of 32% of the professional courses, and the proportion of lectures given by enterprise instructors reaches 20%, effectively making up for the shortage of teachers in emerging fields.

3. Innovation of guarantee mechanism

3.1. Reform of governance system-Building a new pattern of pluralistic and common governance

Through the establishment of a council system with the participation of representatives of industrial enterprises, the collaborative governance structure of "leadership by the board of directors, responsibility by the president, governance by professors, and democratic management" has been perfected. For example, a provincial private university alliance promotes the establishment of councils with enterprise representatives (≥30%), so that industrial demand is directly integrated into the decision-making of professional construction, and the proportion of enterprise-led proposals in the annual professional adjustment proposal reaches 42%, 25 percentage points higher than that before the reform. This mechanism has effectively cracked the predicament of "school hot and enterprise cold", and the implementation rate of joint decision-making by schools and enterprises has increased from 58% to 87%.

3.2. Resource integration platform: Promoting intensive development

A regional alliance of private colleges and universities was formed to build a resource integration network of "teacher sharing, curriculum interoperability, and equipment synergy". The Yangtze River Delta private university teaching resources sharing platform has realized 276 boutique courses, completed the mutual recogni-

tion of cross-college credits for a total of 12, 000 times, jointly constructed 12 intelligent manufacturing shared training bases, and increased the utilization rate of equipment from 45% to 78%. Through the establishment of "curriculum development community", the cycle of new teaching materials writing has been shortened by 40%, saving construction costs of more than 30 million yuan.

3.3. Transformation of evaluation orientation: Establishment of developmental quality concept

An evaluation system centered on "developmental quality of graduates" has been established, and value-added indexes such as employer satisfaction (weighted at 25%), entrepreneurial effectiveness (weighted at 15%), and career promotion rate (weighted at 20%) have been included in the assessment. After the pilot project of an applied university, the proportion of practical hours in the talent training program increased from 28% to 40%, the proportion of graduates promoted within three years increased by 18 percentage points, and the rate of repeat recruitment by enterprises increased from 35% to 62%, forming a virtuous cycle of "high-quality employment → social recognition → student source optimization".

4. Development trends

4.1. Artificial intelligence-Driven personalized cultivation

Relying on AI technology to build an adaptive learning system, for example, a private university introduced an intelligent learning analysis platform, which customized the growth path for 85% of students through dynamic learning portraits, and increased the passing rate of theory courses by 23%. A "digital tutor" system has been developed to realize 24-hour personalized Q&A, covering 70% of professional core courses and effectively alleviating the problem of insufficient teachers.

4.2. Breakthrough in vocational undergraduate standard system

In response to the problem of ambiguous positioning of vocational undergraduate education, the pilot institutions of the Ministry of Education have formed a three-dimensional standard framework of "technical literacy + engineering ability + innovative thinking". For example, a university of applied technology has embedded enterprise technology certification (e.g. Huawei HCIA) into the credit system, and the dual-certification rate of graduates reaches 91%, with starting salaries 18% higher than those of traditional undergraduates.

4.3. Education ecosystem extension

Expanding the integration mode of "academic degree + training", the Yangtze River Delta Private University Alliance has launched a "credit bank", storing a total of 120, 000 non-academic learning achievements. A university has built a college of continuing education with enterprises, and the number of annual trainings has exceeded the size of academic students by 2.3 times, opening up the second growth curve.

4.4. Breakthrough in internationalized professional accreditation

Promoting professional accreditation of engineering education in accordance with the Sydney Agreement. After a private university's intelligent manufacturing program was accredited by Germany's ASIIN, the proportion of graduates going to Germany for further study jumped from 3% to 15%. Developing the "Belt and Road" special curriculum package, the cross-border e-commerce major has realized the mutual recognition of credits in ASEAN countries, and the proportion of international students has exceeded 10%.

The quality improvement of private colleges and universities is not only the inevitable choice of self-renewal, but also the requirement of serving the regional economic and social development. Through systematic re-

form and innovative practice, it is entirely possible to walk out of a characteristic and high-quality development path.

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