



The Construction of "Eight Synergies" Production Education Integration Education System Based on the Training of Applied Talents-Taking the Human Resources Management Major of Chengdu Neusoft University as an Example

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Abstract. The main purpose of the transformation of local regular institutions of higher education to the application-oriented type is to cultivate application-oriented talents. The only way to cultivate application-oriented talents is the integration between industry and education, which is an important means to effectively eliminate the gap between the talent cultivation and the social needs. However, due to the lack of motivation, weak practical effectiveness, difficult path building and other problems, the integration between industry and education on the side of universities has become a mere formality, and there is still a great gap between the applied-oriented talent cultivation quality and the social needs. The "eight-aspect collaboration" education model in the integration between industry and education is an exploration and innovation in realizing the collaborative education between schools and enterprises and the precise training so as to promote the deep integration between industry and education, which aims at the cultivation of application-oriented talents, targets at the the cultivation process of professional talents as per the demand on industrial talents, and adopts a "three-layer collaborative education mechanism" and a "four-step integrated collaborative education path". Such "eight-aspect collaboration" education model in the integration between industry and education has been formed and put into practice in the major of human resources management of our school. This dual system education has solved the structural contradiction between the demand side of enterprises and the talent supply side, and improved the quality of talent cultivation, thus providing an experience for application-oriented undergraduate universities to realize the integration between industry and education.

Keywords: application-oriented undergraduate; application-oriented type the integration between industry and education; dual system education; application-oriented type

1 Implementation Background

The Outline of the National Medium- and Long-term Program for Education Reform and Development (2010—2020) clearly points out that "we should constantly optimize the structure of higher education, optimize the disciplines, types and hierarchical structures, and promote the intersection and integration of multiple disciplines. We should focus on expanding the scale of training applied, compound and skilled talents." This was a strategic deployment for higher education personnel training to adapt to the national and regional economic development, and it was also for the first time that the training of applied talents was written into an official document at the national level. At present, China's economic development urgently needs colleges and universities to cultivate a large number of high-quality application-oriented talents. The cultivation of high-quality application-oriented talents is the main responsibility of local application-oriented undergraduate colleges and universities. The integration between industry and education and the collaboration between schools and enterprises are the source of strength and the inevitable way for the cultivation of application-oriented talents.

The applicable objects of the integration between industry and education have been continuously upgraded, from modern vocational education to application-oriented undergraduate colleges, and then further expanded to "double first-class" building universities. The integration between industry and education has become the school running principle of all types of colleges and universities, and one of the powerful propellers for application-oriented undergraduate colleges and universities to promote the development of specialities. However, at present, universities and enterprises are faced with such problems as "insufficient driving force", "break-points" and "formality overweighs effectiveness" in the integration between industry and education, resulting in the fact that there are still obvious gaps in the structure, quality and level between the talent cultivation supply side and the industry demand side. Deepening the integration between industry and education, and promoting the organic connection of the education chain and the talent chain with the industry chain and the innovation chain are the urgent requirements for promoting the structural reform of the human resource supply side.

The major of human resources management in Chengdu Neusoft University has benchmarked the first-class specialty in adapting to the changing characteristics of talent demand occurring in the modern industrial integration, and closely cooperated with the human resources service enterprises to jointly carry out the pilot test in the "eight-aspect collaboration" education mechanism characterized by the integration between industry and education that is composed of "three-layer interaction and four-step integration", which provides a "new pattern" for the human resource management specialty in China to cultivate high-quality applied talents that can be used and retained by enterprises.

2 Main Methods

2.1 Clarifying the training orientation of application-oriented talents, and implementing the talent training in line with the industry demand orientation

Chengdu Neusoft University is an undergraduate college aiming at cultivating application-oriented talents. Taking the pilot project of the overall transformation, development and reform of undergraduate colleges and universities as an opportunity, the school launched a big discussion for unifying the thoughts and achieving consensus on the education and teaching ideas. The university released the College Statute and the Implementation Plan for the Overall Transformation and Reform of Applied Technology Universities, which define the school running ideas of focusing on three directions: integration between industry and education, innovation and entrepreneurship, and international cooperation. At the same time, with the integration between industry and education and the collaborative education as the starting point, the college has actively carried out the pilot test of the overall transformation of applied technology universities.

Based on the school running positioning of being an application-oriented college, by following the college's school running philosophy that "education creates student value", combining the school's six-teaching ideas including "whom to train, what direction to train, how to train, how is the training effect, etc.", and using the "Ten-Step Method for Revising (Formulating) the Talent training program", the major of human resources management took the industrial demand and employment quality as the important basis in revising its talent training program, and implemented the talent training in close combination with the industrial demand (as shown in Figure 1).

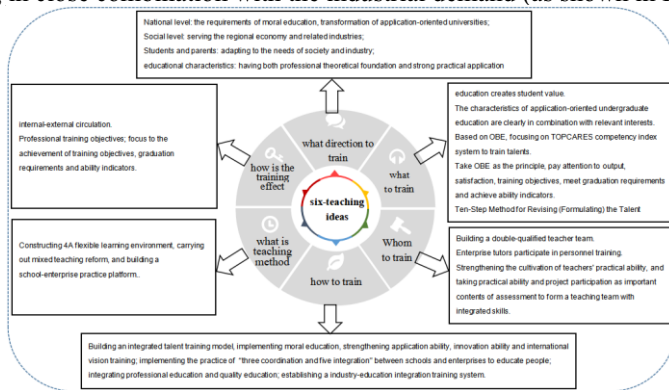


Figure 1: The Theoretical and Logical Thinking Diagram for the Applied Talent Training System

2.2 Establishment of the "eight-aspect collaboration" education mechanism characterized by integration between industry and education based on the "three-layer interaction and four-step integration"

After years of exploration and practice, by building a "collaborative education path composed of three-layer collaboration and fourth-step integration", the major of human resources management has gradually formed an "eight-aspect collaboration" education

model characterized by the integration between industry and education for the human resource management speciality in applied undergraduate universities, which contains "collaborative determination of the training objectives, collaborative revision of the talent training program, collaborative design of courses, collaborative design of projects, collaborative development of teaching materials, collaborative implementation of teaching, collaborative guidance of practical training, and collaborative promotion of student employment" (as shown in Figure 2).

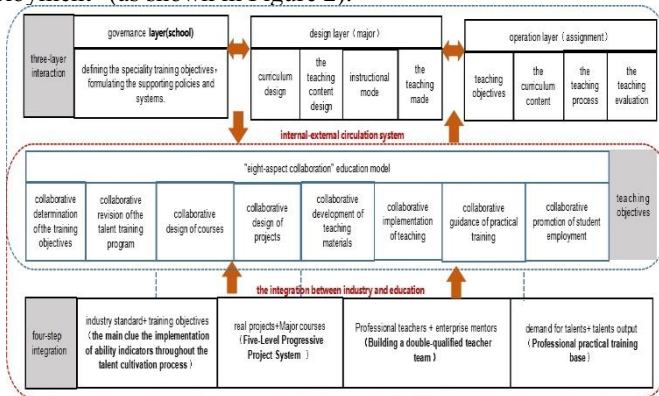


Figure 2: The eight-aspect collaboration Education Model Characterized by the Integration Between Industry and Education

1) Defining the organization of integration between industry and education, and building a three-layer interaction collaborative education mechanism

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2) Focusing on the docking points between industry and education, and promoting the four-step integration collaborative education path

By targeting at the industrial talent demand and the professional talent training process, focusing on the docking points between industry and education, including those between the "industry standards and training standards, real projects and professional courses, professional teachers and enterprise mentors, and talent demand and talent output", and adopting a four-step integration promotion strategy (Figure 2), the speciality of human resources management has ensured the implementation of the "eight-aspect collaboration" education model characterized by the integration between industry and education for the human resource management speciality in applied under-

graduate universities, which contains "collaborative determination of training objectives, collaborative revision of talent training program, collaborative design of courses, collaborative design of projects, collaborative development of teaching materials, collaborative implementation of teaching, collaborative guidance of practical training, and collaborative promotion of student employment"

a) Incorporating the industry standards into the training objectives and building a TOPCARERS ability indicator system

In order to promote the reform of talent cultivation in the integration between industry and education, by taking as the main clue the implementation of TOPCARERS' ability indicators throughout the talent cultivation process, the major of human resources management constructed a "TOPCARES" talent cultivation ability indicator system consisting of 8 first-level indicators, 34 second-level indicators, and 56 third-level indicators; by using the "Ten Step Method of Revising (Formulating) the Talent training program", defined the industrial needs as ability indicators of professional talent training; by carrying out a "five entries project" (entering the ability indicators into training objectives, into curriculum standards, into curriculum textbooks, into professional classrooms, and into professional projects), mapped the ability indicators into the specialty, and decomposed the ability indicators layer by layer into various teaching links such as curriculum, projects and activities, and in this way, has realized the integration of industrial needs into the whole process of talent cultivation.

b) Integrating real projects into the professional courses and building a five-level progressive practice project system

According to the training objectives and graduation requirements, the major of human resources management decomposed the four-year practical ability training requirements of the college into various practice links and experimental projects, formed the professional practical ability training route and the ability training matrix, and incorporated them into the professional talent cultivation program. By building a career scenario-based learning environment, a highly integrated and highly relevant curriculum-project integration and "three-layer and five-level" progressive practical teaching idea was formed within the scope of knowledge involved in the project implementation (as shown in Figure 3).

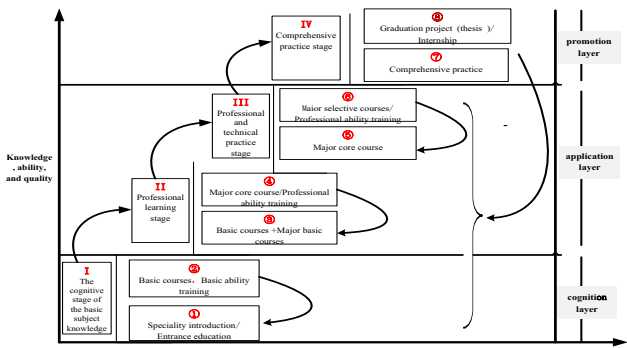


Figure 3: Three-Layer and Five-Level Progressive Practical Teaching Idea

"Three layers" include cognition layer, application layer and promotion layer. At the cognition layer, the department and speciality will arrange entrance education and speciality introduction, including the introduction about the industry trend, human resources management speciality analysis, speciality overview and career planning, so that students can have a macro understanding of the speciality and stimulate their interest in learning. At the application layer, the professional course teaching, professional practice activities and quality education will be carried out for the students with an aim to enable them to grasp the professional knowledge, professional skills and professional qualities that are necessary for their professional jobs. At the promotion level, with the training of application-oriented talents as the start point, targeting at the actual needs of human resource management jobs, the students practical ability will be greatly improved through the practical teaching activities in real projects.

"Five levels" refer to the five-level progressive practice project system. The system takes the real project as the logical thread, collaborates with the industry and enterprises to analyze the discipline knowledge system and the technology logic system, re-designs the structure, content and order of the professional curriculum system according to the workflow of human resource management, and constructs an integrated project system with the ability-guided traction, the "five-level projects" running-through and the dynamic content updating (Figure 4). The first level projects include a cornerstone project designed with the freshman course of speciality introduction as the carrier, and a capstone project designed with the comprehensive practical training in the senior year as the carrier, which covers the knowledge and ability requirements of the core courses of the speciality, aiming to cultivate the core professional abilities. The second level projects are composed of the projects of the company's organizational design and campus recruitment, human resources management engineering process training, career planning and job hunting skills training, which are curriculum group projects designed based on a group of related core ability requirements, aiming to cultivate students' comprehensive practical abilities by stage. The third level projects are curriculum projects designed with a specific course as the center, aiming to realize and improve the curriculum ability. The fourth level projects are unit projects designed based on the knowledge and ability requirements of two or more unit groups (modules) in a specific course, aiming to strengthen the students' course ability objectives. The fifth level projects are designed based on the knowledge and ability requirements of a specific unit in a specific course, aiming to strengthen a certain ability objective.

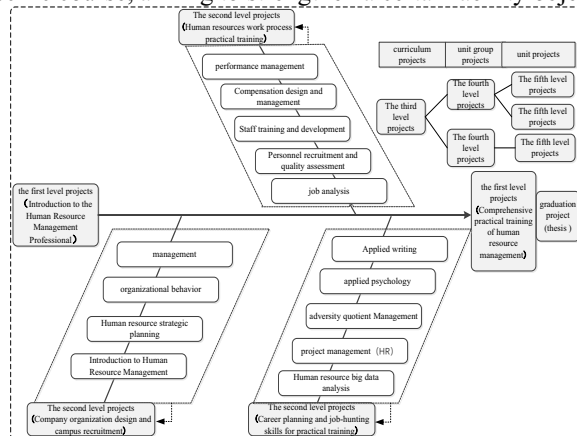


Figure 4: Five-Level Progressive Practice Project System of Human Resource Management Speciality

3) Building a double-qualified teacher team and strengthening the interaction mechanism between school and enterprise teachers

According to the management systems such as Administrative Measures for Part-time Teachers, Graduation Design (Thesis) Work Norms, and Measures for Certification of Double -Qualified and Dual-Talented Teachers issued by the school, the major of human resources management has actively employed enterprise personnel as teaching and practice instructors of the speciality, introduced teachers with an industrial background, promoted the teachers' understanding of the "five new" technologies in the industry and guided the teachers to integrate "five new technologies" into teaching. At present, 54.5% of the school's full-time teachers are double-qualified teachers and there are also nearly 20 part-time teachers from enterprises. Through the cooperation of teachers inside and outside the school, a new learning guidance model composed of academic guidance by the teachers inside the school plus industry guidance by the enterprise mentors has been formed, which has enabled the students to greatly expand their knowledge and vision, and really go out of the "ivory tower".

4) Deeply introducing enterprises into education, and building an education platform integrating industry and education

The major of human resources management has actively given play to the comprehensive advantages of talents and speciality, integrated the resources of both industry and education to build an education platform characterized by the integration between industry and education, actively promoted the collaborative construction and management by industry and education, and explored the deep integration between industry and education, thereby enabling the talent output to be well in line with the talent needs of the industry. The major of human resource management has focused on the industrial chain and the regional industrial clusters, and based on the close cooperation with Liepin, Shanghai Foreign Service, Career International, Shanghai Sirui and other industry leaders, the major of human resource management has created the professional characteristics of "application type, informatization, and digitalization", integrated the needs of the teaching and the industry, and adopted the measures such as collaborative determination of schemes, curriculum dual-construction, student-enterprise dual selection, process dual guidance, resource co-construction and quality dual-evaluation, and fully implemented the "eight-aspect collaboration"-based integration between industry and education. As a result, it has kept a high rate of matching between the talent output and the industry needs. In the past three years, the related employment rate of its students in this industry has remained above 85%, and the proportion of its students flowing into this field has been kept high.

2.3 Building a continuous optimization mechanism for internal-external circulation, and forming a coordinated education guarantee driven by the four parties

By learning as reference from the quality management concepts and methods such as ABET and PDCA, the specialty of human resources management has initially constructed a collaborative education quality assurance system driven by industry, enter-

prise, school and society by implementing quality standards and strengthening monitoring, so as to achieve dual cycle quality monitoring both inside and outside the school and ensure the quality of education based on the integration between industry and education.

The in-campus monitoring takes the professional teachers + department level, college level and school level supervisors as the subject, and the TOPCARERS ability indicator system integrating industry standards and training objectives as the main line, aiming to help strictly implement the quality standards formulated by the college in the speciality teaching links such as disciplines, courses and projects. The professional teachers adopt student symposium, questionnaire survey and other methods to strengthen the real-time attention to the students' learning effects, and dynamically adjust the course content, classroom teaching methods, so as to achieve student-centered and learning effect-oriented curriculum micro adjustments. The off-campus monitoring takes graduates + industries and enterprises as the subject to include the industries and enterprises into the quality monitoring system. The off-campus monitoring is achieved through graduate survey, training quality feedback, employer survey and other activities.

The continuous optimization mechanism for internal-external circulation emphasizes that the implementation of the TOPCARERS inability indicator system should be included in the quality evaluation, the main links and factors affecting the quality of talent cultivation should be monitored in the process, and the quality assurance of the integration between industry and education should be strengthened according to the school-enterprise cooperation quality standards formulated by the school, so as to achieve the closed-loop management of the "eight-aspect collaboration"-based education from source to end, and ensure the effect of the education based on the integration between industry and education.

3 Outcomes and Achievements

3.1 Improved enterprises' enthusiasm in participation and deepened integration between industry and education by schools and enterprises

The major of human resources management has established a deep integration and cooperation between industry and education with many industrial enterprises, which integrates "production, education and research", built employment bases and experimental training rooms with Shanghai Sirui, Beijing Zhongrui, Beijing Liderar and other enterprises, and established a Ruiding practical teaching platform with Neuedu. It has had in-depth cooperation with Shanghai Sirui Company, and launched a digital campus recruitment simulation contest focusing on teachers and students majoring in human resources management. Moreover, in the 2019-2020 and 2021-2022 academic years, Shanghai Sirui Company took part in the centralized practical teaching link with a real project titled "Digital Recruitment Professionals Class", and provided the employment chance to about 70 people in total.

3.2 Improved students' practical ability and remarkable results in collaborative education

Through the in-depth implementation of the "eight-aspect collaboration" in the education based on the integration between industry and education, the students' professional skills and professional abilities have been further improved, and the students' innovative practice ability and graduate employment quality have been continuously improved. In the past three years, 100 students majoring in human resources management have participated in the innovation and entrepreneurship training programs for college students at or above the provincial level, including more than 10 national level programs and more than 30 provincial level programs. In the past three years, more than 300 students have won awards at or above the provincial level in various disciplines and innovation & entrepreneurship competitions. The students have published more than 20 papers and obtained the right grant for more than 20 patents.

According to the Lefran survey data, in the recent three years, the professional matching rate of our graduates has exceeded 80%, and the overall employer satisfaction with our graduates has exceeded 96%.

3.3 Having got through the channel of "advancing together in the same direction" in imparting knowledge and educating people", and opened up a new way for "moral education"

Based on the OBE output-oriented concept, the major of human resource management has taken the education effect as the guidance and the talent cultivation scheme as the starting point, and has gradually built the courses modules such as general courses, specialized courses, concentrated practice and quality development, which embody the spirit of advancing together in the same direction and accumulating sands to form a pagoda, so as to achieve the good effect of collaborative education of people. In terms of quality expansion, by carrying out the series of professional quality activities of "To create dreams with ingenuity and to win the future by occupational skills" (as shown in Figure 5: Series of Quality Activities of "To Create Dreams with Ingenuity and to Win the Future by Occupational Skills), the requirements of ideological and political elements were embodied into practical operation experience, so that the professional teaching and the ideological and political education were organically combined. Through the heuristic education before class, the experiential education during class and the perceptive education after class, the value leading role of ideological and political education was fully implemented, so that students could experience the importance of professional quality and improve the moral education awareness and ability of professional teachers. At present, the major of human resource management has 3 provincial level demonstration courses in "Course Ideology and Politics" and 1 demonstration team of "Course Ideology and Politics"; 4 school-level demonstration courses of "Course Ideology and Politics" and 1 demonstration team of "Course Ideology and Politics"; and has won the title of "Course Ideology and Politics" demonstration major. In addition, the major has over than 10 subjects related to ideological and political science of the school level and above.

4 Experience Summary

The "eight-aspect collaboration" education model based on the integration between industry and education has significantly improved the quality of talent cultivation, cultivated a large number of high-quality application-oriented talents for enterprises and the society, and also provided a demonstrative model for the integration between industry and education in other colleges and universities. Its successful experience lies in the following aspects:

After years of exploration and practice, the "eight-aspect collaboration" education model based on the integration between industry and education has achieved remarkable results, and realized a win-win coordinated development of the students, schools and enterprises. The collaboration among and the recognition of the students, parents, society and enterprises is the premise for carrying out the "eight-aspect collaboration" practical teaching; the participation of the enterprises in the whole process of talent cultivation to give full play the role of subject in educating people is the key to the successful implementation of the "eight-aspect collaboration" education model based on the integration between industry and education; closely according to the post demand and the professional ability requirements of the cooperative enterprises, we have established a new long-acting education mechanism based on the integration between industry and education to stimulate the internal power of teaching and education, and by taking the requirements of professional construction as traction and the standards of application-oriented talent cultivation as guide, we have actively explored the new platform, new content and new model of professional teaching in combination with the sector and industry needs in talent cultivation.

There are still shortcomings in our "eight-aspect collaboration" education model based on the integration between industry and education, which need to be gradually improved in the later stage. Firstly, the collaborative development of textbooks still needs to be specifically implemented. The textbook updating tends to lag behind the actual teaching. In the later stage, we need to rely on the efforts of both parties to continuously optimize the textbooks; secondly, the teaching quality assessment and evaluation system needs to be further improved, especially that for the period of study, which should be highly operable and effectively implemented.

5 Application Promotion

The reform results of the "eight-aspect collaboration" education mechanism based on the integration between industry and education and characterized by "three-layer collaborative education mechanism" and "four-step integrated collaborative education path" of the major of human resources management in Chengdu Neusoft University have received extensive attention from brother colleges of the same type, such as Dalian Neusoft University, Chengdu Jincheng college, Sichuan University Jinjiang College. These colleges have successively come to the school for exchange and investigation. At present, the virtual teaching and research offices of professional core courses, such as job analysis, personnel recruitment and talent evaluation, compensation and welfare design, performance management, employee training and development, and employee relationship management, have been established in conjunction with some "application-oriented" colleges and universities to reach consensus on the curriculum co-construction and resource sharing.

The "eight-aspect collaboration" education model based on the integration between industry and education has been gradually improved in practice, but to achieve the goal of cultivating high-quality application-oriented talents, the following three points must be considered: first, to conduct full research and multi-party argument before implementation, and to refine the enterprise's talent demand standards into specific knowledge points and incorporate them into the talent training program; second, we can take the construction of professional groups as an opportunity to carry out the training of compound talents, so that the number of students who can participate in the integration between industry and education can be increased, the level can be improved, and ultimately the employment of students can be expanded; third, we should guide the school teachers to be deeply involved in the process of talent cultivation, pay attention to improving the education quality of enterprise teachers, and promote the all-round development of students.

The "eight-aspect collaboration" education model based on the integration between industry and education implemented in the major of human resources management has opened up new ideas and strengthened the capability of local colleges to serve the regional economic development. The application promotion of this model will certainly become a powerful driving force to promote the high-quality development of regional integration between industry and education.

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