

# Exploration of Innovation Points of Cultivating High-Quality Talents under the Background of New Engineering

-- Taking Tangshan Colleges and Universities as an Example

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**Abstract:** Through literature analysis, questionnaire survey and field interviews, this paper statistically analyzes the professional data of six institutions containing engineering majors in Tangshan City, and then thoroughly analyzes the characteristic reform and innovation methods of four institutions, namely, North China University of Science and Technology, Tangshan Polytechnic College, Tangshan College and Tangshan Normal College, to explore how to cultivate high-caliber talents under the background of the new engineering discipline. The study finds that the cultivation of high-quality talents needs to highlight the following innovations: (1) Deepen the cultivation of students' comprehensive quality, strengthen the practical teaching link, and enhance the quality of talent cultivation, including professional knowledge, practical ability, and humanistic literacy, etc.; (2) "Project-based" drive students' independent innovation, including entrepreneurial plans, experimental development, and competitions, etc., to improve students' practical ability and innovation consciousness; (3) Parallel enterprise feedback to expand the boundaries of employment services, including explaining employment policies, analyzing the employment situation, teaching career choice skills and other ways. The research in this paper has certain reference significance for the cultivation of talents in colleges and universities under the background of new engineering disciplines, which is conducive to better cultivating high-quality talents in line with the needs of the society.

**Keywords:** New Engineering; High-quality Talents; Independent Innovation; Enterprise Feedback.

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## 1. Introduction

With the continuous development of society, the demand for the quality of talents of college graduates is getting higher and higher. Under the background of new engineering, the talent cultivation methods of colleges and universities also need to be constantly updated, improved and innovated. In this context, how to cultivate high-quality talents who are more in line with the needs of the society and have the spirit of innovation and practical ability has become an important task faced by colleges and universities.

As a group of colleges and universities supported by Hebei Province, the education and teaching level of Tangshan colleges and universities is relatively high, which provides a good research object for this paper to study the cultivation of talents in colleges and universities under the background of new engineering. Through the comprehensive use of field interviews, questionnaire surveys and literature analysis and other methods, we explore new ideas and new modes of high-quality talent cultivation in Tangshan colleges and universities. The results of the study can not only provide some reference for the universities in Tangshan City and Hebei Province on talent cultivation methods, but also will have certain reference value for the cultivation of talents in universities under the background of new engineering disciplines.

## 2. Analysis of Engineering Majors by Institution:

### 2.1. Number of Engineering Majors Across Institutions:

Tangshan currently has 13 colleges and universities, six undergraduate colleges and universities, namely, North China University of Science and Technology, Tangshan Normal College, Tangshan College, North China University of Science and Technology Light Industry College, North China University of Science and Technology Jitang College, and Hebei College of Science and Technology; and seven specialized colleges and universities, namely, Hebei Energy Vocational and Technical College, Tangshan Institute of Industrial Vocational and Technology, Tangshan Institute of Vocational Technology, Tangshan Institute of Science and Technology Vocational and Technical College, and Tangshan Early Childhood Teacher Training Higher and Specialized Colleges, Caofeidian Vocational and Technical College, and Tangshan Maritime Vocational College. Among them, there are 12 schools that set up engineering majors. In this paper, we select the representative six institutions and carry out data statistics on the total number of majors and the number of engineering majors set up in the schools, and the results are shown in Figure 1:

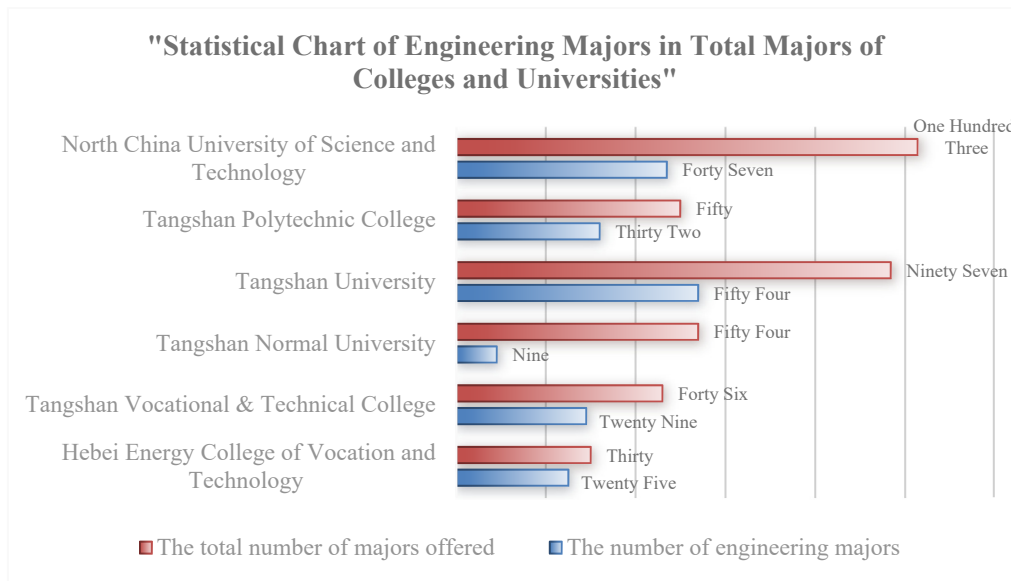


Fig 1. Statistical chart of total school majors-engineering majors

The number of engineering majors and the percentage of engineering majors in each school can be clearly seen through Figure 1. Among them, North China University of Science and Technology and Tangshan College are the schools with the most engineering majors and a wide range of specialties; Tangshan Normal College has a smaller number of engineering majors; Tangshan Institute of Vocational Technology and Hebei Energy Vocational and Technical College have a relatively small total number of majors, but the percentage of engineering majors is relatively high, and the direction of the research is clearer.

## 2.2. Based on the Analysis of the Current Situation of Professional Reform in Each Institution in the Context of New Engineering:

Through a combination of online and offline interviews, we surveyed and analyzed the post-2018 professional reforms based on the background of the new engineering disciplines in each institution, and integrated the results in Table 1 by combining the development process of disciplines, feedback from enterprises, and other information:

Table 1. Summary of the more notable reformed majors (including new ones) in each institution in the context of the new engineering discipline

Name of the school	Majors with more significant reforms in the context of new engineering disciplines (including new ones)
North China University of Science and Technology	Intelligent Science and Technology, Intelligent Construction, New Energy Science and Engineering, Energy Chemical Engineering, Integrated Circuit Design and Integrated Systems, Data Science and Big Data Technology, Carbon Storage Science and Engineering (new)
Tangshan Polytechnic College	Applied Chemical Technology, CNC Technology, Automotive Testing and Maintenance Technology, Construction Engineering Technology, Mechanical Manufacturing and Automation, Mechatronics Technology, Electromechanical Equipment Technology, Rolling Stock Overhaul Technology, Electrical Automation Technology, Big Data and Accounting, Smart Welding
Tangshan University	Intelligent Construction, Data Science and Big Data Technology (new), Intelligent Science and Technology (new)
Tangshan Normal University	Marine Science (new), Artificial Intelligence (new), Physics, Applied Chemistry
Tangshan Vocational and Technical College	Drone application technology, intelligent control technology
Hebei Energy College of Vocational and Technical	Engineering Surveying Technology, Ventilation Technology and Safety Management, Photovoltaic Engineering Technology, Fintech Applications

As can be seen from Table 1, Data Science and Big Data Technology, Intelligent Science and Technology, and

Intelligent Construction are the more common and significantly reformed majors in each institution, and the new

or significantly reformed majors in each institution are also more diversified, covering a wide range of disciplinary fields such as engineering technology, software technology, photovoltaic engineering, and so on.

### **(1) The more notable reformed majors among the institutions in the context of new engineering are related to the discipline development strategy**

We explore the reasons for each school's selection of a particular new engineering specialty in the context of the institutions' disciplinary development strategies and the cooperation between universities and industries. For example, the disciplinary development strategy of North China University of Science and Technology (NCUST) encompasses the fields of chemical engineering, automation, and computer science, and its selected new engineering major is closely related to these fields. Tangshan Institute of Industrial Technology, on the other hand, cooperates closely with a number of automobile, machinery, and construction enterprises, and so its selected new engineering majors are also related to these fields.

### **(2) The close relationship between the new or reformed majors of the institutions and the local economic development under the background of new engineering disciplines**

We explored the close relationship between the new or reformed majors of each institution and the local economic development under the background of new engineering disciplines by analyzing the local industrial structure as well as the economic development. For example, the new major of data science and big data technology in Tangshan College and the major of photovoltaic engineering technology in Hebei Energy Vocational and Technical College are closely related to the emerging local IT industry and energy industry.

### **(3) The close relationship between the new or reformed majors of institutions and social demand in the context of new engineering disciplines**

We explored the close relationship between the new or reformed majors of each institution and the social demand under the background of new engineering disciplines by analyzing the development trend of each industry and the demand situation of enterprises for talents. For example, the new intelligent welding major of Tangshan Polytechnic College and the UAV application technology major of Tangshan Vocational and Technical College are closely related to the demand of local enterprises.

Through the above analysis and investigation, we can better understand the reasons and motives for the institutions' choice of new or reformed majors under the background of new engineering disciplines, as well as the future trend of industry and social demand for talents in this field, which provides a useful reference for talent cultivation and education reform.

## **3. Domestic Advanced High-quality Personnel Training Methods:**

### **3.1. Cultivate Students' Comprehensive Quality and Practical Ability:**

#### **(1) Developing practical teaching**

Some universities in China have already carried out practical teaching activities, such as the "SES Inquiry-based Learning Program" implemented by Zhejiang University, which provides students with the opportunity to work with the community to solve real-world problems and practical

applications, and enhances their problem-solving and self-learning abilities. In addition, Peking University has launched a number of experiential courses and internship programs to improve students' practical skills and develop innovative thinking and practical awareness.

#### **(2) Promoting diversified teaching**

Some colleges and universities and educational institutions promote diversified teaching methods to cultivate students' innovation ability. For example, the Institute of Computing Technology of the Chinese Academy of Sciences and the University of Electronic Science and Technology have jointly opened the "Big Data and Artificial Intelligence Innovation College", which constantly broadens students' application and technical capabilities by focusing on research and cultivating innovative talents.

#### **(3) Focus on comprehensive quality education**

Colleges and universities emphasize comprehensive quality education and encourage students to participate in various extracurricular activities. For example, the Energy and Power Athletic Association founded by the School of Energy and Power Engineering of Beijing Institute of Technology divides students into different teams to carry out innovative design and engineering manufacturing. This not only cultivates students' innovation and practical ability, but also enhances their sense of teamwork and comprehensive quality.

## **3.2. Promote School-enterprise Cooperation and Integration of Production, Learning and Research:**

#### **(1) New ways of school-enterprise cooperation**

Give full play to the strengths of universities and colleges, and land scientific research results to realize the deep integration of university-enterprise cooperation and industry-university-research. For example, Xi'an University of Electronic Science and Technology cooperates with China National Reserve Grain Management Corporation to integrate university resources and innovation and entrepreneurship education into enterprise production and management. In addition, Nanchang University has cooperated with the Jiangxi Provincial Procuratorate to establish a base for procuratorial quality assessment and procuratorial talent training.

#### **(2) Broaden the channels of science and technology innovation**

Institutions of higher education broaden the channels of science and technology innovation and encourage students to innovate on their own. For example, Beijing Institute of Technology has set up the "Student Innovation and Entrepreneurship Center", which provides students with all-round services including project management, entrepreneurship foundation, technology exchange, etc. Students who need to start their own business can obtain financial support and relevant policy support.

## **3.3. Implementing a Multi-faceted Approach to Teaching:**

#### **(1) Mentorship implementation**

Mentorship is a common multi-perspective teaching method. Some universities such as Nanjing University of Aeronautics and Astronautics (NUAA) encourage undergraduates to choose their own mentors and provide them with face-to-face teaching, research support and communication guidance. Nanjing Normal University has

launched a mentor-apprentice program, where mentors provide students with guidance on career planning, direct academic research and guide them in innovation and entrepreneurship.

### **(2) Promoting Innovation Contests**

Innovation competitions can motivate students to take the initiative to participate in various disciplinary competitions, innovation design, Internet entrepreneurship competitions, etc. By transforming theoretical knowledge into practical applications, they can strengthen students' innovation, practical ability and actual operation ability. For example, the University of Science and Technology of China (USTC) has continuously organized the China University Students' Internet+ Competition, which attracts tens of thousands of university students to participate every year. This competition not only encourages students' innovation and entrepreneurship, but also enhances their comprehensive quality and communicative ability.

### **(3) Development of cross-disciplinary education**

Cross-disciplinary education is a form of multi-faceted teaching, which can provide students with cross-disciplinary training, broaden their disciplinary horizons and disciplinary ways of thinking. For example, Hunan University has opened the "Orthopedic Engineering and Robotics Research Center", which is a multidisciplinary cross-fertilization that breaks the traditional division of disciplines, and uses the new cross-disciplinary model to cultivate excellent talents with organic combinations.

### **(4) Experimental teaching and project-based teaching**

Experimental teaching and project-based teaching is one of the key teaching modes to explore students' innovative potential. For example, Nanchang University of Aeronautics and Astronautics has set up an experimental course for electronic design competition, combining theory and practice. The industrial design program of Central South University even integrates project-based teaching into each academic year, and organizes professional construction scholarships, on-campus competitions, and industry design competitions, so that students can exercise their innovation and practical operation abilities in actual projects.

### **(5) Inquiry-based teaching and case study teaching**

Inquiry-based teaching and case study teaching emphasize students' independent learning and participation, encourage students to explore independently, and help cultivate personal innovation and practical ability. For example, the School of Computer Science of Jilin University has set up the "Computer Frontier Theme Inquiry Class", in which students organize practice and discussion to jointly explore the frontier research direction in the field of computer science, so as to cultivate students' bi-initiative ability and problem solving ability. Strengthening inquiry-based education and case-based education will link students' theory and practice, thus better promoting the improvement of students' personal comprehensive quality and innovation ability.

## **4. The Existing Educational Resources of Tangshan Institutions and the Progress of Each Deployment**

### **4.1. Overall Analysis of Educational Resources in Tangshan Institutions:**

Tangshan institutions already have rich educational resources and practical activities, which have great

advantages for the cultivation of high-quality talents in the context of new engineering:

#### **(1) High-level Faculty**

Tangshan institutions have formed a high-quality and high-level faculty, with a relatively high number of teachers with doctoral and master's degrees or above. They have rich teaching experience and research and practice ability, and are able to provide students with forward-looking and important academic research and practice activities.

#### **(2) Perfect experimental facilities**

Tangshan institutions have advanced experimental facilities and experimental platforms, which can satisfy students' experimental learning and scientific research. For example, Tangshan Normal College has a number of high-end laboratories such as Design Center, Big Data Center and Intelligent Manufacturing Center; Tangshan Vocational and Technical College is well-equipped with a number of laboratories such as Organic Synthesis, Drug Analysis, Mass Spectrometry and Biotechnology.

#### **(3) Diversified Curriculums**

The curricula of Tangshan colleges and universities are diversified, including academic courses, vocational courses, public courses, etc., which are able to satisfy the needs of students in terms of disciplines and personalized training. For example, the "International Economics and Trade" major of Tangshan College fully exposes students to foreign trade business and economic and trade practice through the implementation of boutique practical teaching methods; the "Mold Design and Manufacturing" major of Tangshan Institute of Industrial Technology attaches importance to theoretical learning and the cultivation of practical ability. The "Mold Design and Manufacturing" program of Tangshan Institute of Technology emphasizes theoretical learning and the cultivation of practical ability.

#### **(4) Focus on practical education**

Institutions in Tangshan City emphasize on improving students' practical ability and carry out many practical activities. For example, Tangshan College has set up the "Student Association Service Center", which attracts 15 associations of different directions and types, such as the Literature Club, the Computer Intelligence Innovation Laboratory, and the Business Innovation Workshop, etc., to cultivate students' teamwork spirit and comprehensive quality.

## **4.2. Analysis of the Specific Situation of the Four Representative Institutions in Tangshan City:**

Taking North China University of Science and Technology, Tangshan Normal College, Tangshan College and Tangshan Institute of Industrial Vocational and Technical College as examples, we specifically analyze the situation of the four institutions in terms of faculty, equipment, curricula, teaching methods, and school-enterprise cooperation:

#### **(1) North China University of Science and Technology**

**Faculty:** has a high-quality, strong research strength of the faculty, the total number of faculty and staff on campus is more than 4,000 people, including academicians of the Chinese Academy of Sciences, the Yangtze River Scholars and a large number of teaching and research backbone.

**Equipment:** Experimental equipment and teaching equipment are relatively complete and advanced. For example, there are national key laboratories, provincial key laboratories, as well as a number of basic experimental teaching centers, with a total area of more than 100,000 square meters of

experimental space.

**Courses:** focusing on the construction of the curriculum system, the curriculum is reasonable, combining basic courses with specialized courses, and the content involves both theory and practice. For example, the Mechanical Engineering program focuses on the cultivation of practical ability, and has set up an "Engineering Training Base" to provide students with a practical platform.

**Teaching Methods:** Diversified teaching methods are adopted, such as PBL, engineering cases and other teaching modes, and online courses to assist teaching.

**University-enterprise cooperation:** North China University of Science and Technology cooperates with many enterprises, for example, it cooperates with China Mobile to develop the field of Internet of Things, which provides students with cutting-edge technology and career opportunities in the industry. In addition, enterprise exchanges to college students innovation and entrepreneurship science and technology incubator effect is more prominent, the establishment of a perfect student independent innovation platform and industrial incubation system, supplying students with innovation and entrepreneurship skills training.

### (2) Tangshan Normal College

**Faculty:** It has a high-quality and specialized faculty, including a group of well-known experts and scholars and experts in teaching practice, etc.

**Facilities:** It has several teaching and experimental places, such as mock courts and voice laboratories.

**Courses:** It emphasizes the establishment and development of general education courses, as well as the cultivation of students' professional knowledge and practical ability. For example, the school's Computer Science and Technology program focuses on software development skills and introduces the culture of innovation and entrepreneurship, so that students can pay more attention to practice in the learning process.

**Teaching methods:** Diversified teaching methods are adopted, such as demonstration classes, subject research and other teaching methods.

**School-enterprise cooperation methods:** Cooperation with several enterprises, for example, opening a major in credit and information security in cooperation with Tangshan Zhongzhixun Credit Service Co.

### (3) Tangshan College

**Teachers:** The quality of the teaching team is good, including 35.4% of teachers with senior titles and 36.6% of teachers with master's degree or above.

**Equipments:** Adopting advanced equipments, humanized management, promoting the open management of laboratories with good teaching atmosphere, good operation of experimental equipments and high participation of students.

**Courses:** focusing on the construction of the curriculum system and continuously promoting the curriculum reform. For example, the civil engineering program focuses on multidisciplinary crossover of postgraduates while promoting practical teaching.

**Teaching methods:** Diversified teaching methods, such as PBL, electronic courseware, network teaching, flipped classroom, etc., are adopted to continuously improve the teaching quality and efficiency, and better meet the needs of students.

**School-enterprise cooperation methods:** Focusing on school-enterprise cooperation, we cooperate with many

famous enterprises, such as Lenovo, Digital China, Huawei, Volkswagen, Alibaba, etc., to provide students with internship opportunities and quality career development platforms. For example, the management program has cooperated with the Big Four accounting firms to set up a professional "dual-teacher" talent program.

### (4) Tangshan Polytechnic College

**Faculty:** The faculty is strong, including a group of high-level professionals such as masters and doctors. Teachers have rich production and practical experience, and pay more attention to theory and practice in teaching.

**Equipments:** Focusing on the investment and construction of practical teaching equipments, several practical teaching centers and cooperative training bases have been built.

**Curriculum:** focusing on practical teaching, the curriculum is closely related to the market demand, so that the students are closer to the reality in the learning process.

**Teaching methods:** Diversified teaching methods are adopted, such as PBL, cooperative learning and other teaching modes, and interactive teaching is advocated to enable students to better master knowledge and skills.

**School-enterprise cooperation:** We actively promote the cooperation of "school-in-enterprise" and cooperate with many enterprises to build practical training bases to provide students with practical teaching platforms and employment opportunities. For example, we have cooperated with Tangshan Human-Machine Technology Co., Ltd. to develop VR/AR technology and jointly research and develop display products.

## 5. Enterprise Feedback Summary and Suggestions

Through the establishment of communication with some institutions and enterprises, we have learned about the employment situation of graduates in the past two years and their development after employment. According to the enterprises' answers to the interview questions, combined with the feedback on the employment situation of each institution, we summarize as follows:

### 5.1. Feedback from Enterprises:

Measuring the effectiveness of education and teaching from the "result" link of the talent cultivation chain, i.e., the employment quality of graduates, has become an important perspective for examining all aspects of the talent cultivation process in schools. With the deepening of the connotation development of higher education, the concept of "student-centered, output-oriented, and continuous improvement" has received more and more attention and importance. The employment quality of graduates is an important reflection of the effect of talent cultivation. By understanding the employment quality of graduates, we can find out what needs to be further improved in the cultivation process, thus providing an important basis for the scientific, systematic and continuous improvement of the subsequent talent cultivation work. The implementation of the Ministry of Education's "Double Ten Thousand Plan" for the construction of first-class undergraduate majors has created a good opportunity for colleges and universities to improve the quality of undergraduate education and training of first-class talents.

In order to better cope with the ever-changing industry and technology, and to meet the urgent requirements for talents in the rapid economic and social development, the university

should take the construction of first-class undergraduate majors as an opportunity to actively carry out the optimization and adjustment of majors, continue to deepen the reform of education and teaching, and continuously improve the career guidance and services, so as to better enhance the level of talent cultivation and to promote the graduates to achieve a higher quality and fuller employment.

## **5.2. Feedback Suggestions from Enterprises:**

### **(1) Adjust and optimize the layout of majors based on social demand:**

Higher education plays an irreplaceable and important role in serving regional economic and social development. Understanding the employment quality of graduates and their contribution to the service of the relevant regions and industries can provide an important reference basis for the subsequent development of enrollment plans, the revision and improvement of professional training programs, and the adjustment and optimization of professional structure. Taking North China University of Science and Technology as an example, the proportion of the 2022 undergraduates employed in the province is 45.55%, and the main flow of employment outside the province is 12.2% in Beijing and 7.00% in Tianjin. Graduates employed in the province mainly serve in the construction, metallurgy, mining and heavy chemical industry, while those employed in Beijing and Tianjin mainly serve in the IT and healthcare industry. The school can subsequently combine its own school-running characteristics, dynamically adjust and optimize the layout of specialties according to the needs of the corresponding industrial chain and job groups, continuously improve the degree of matching between talent training and industrial demand, and provide talent support for the construction, metallurgy, mining, heavy chemical industry, IT, medical and health care industries and regional economic development services.

### **(2) Adhere to the competence-based and optimize the teaching and training program**

According to the research, in the employment process of 2022 and 2023 undergraduates, the most important factor is whether the students have practical or work experience (23.37%). Based on the graduates' feedback, the university should further exert its advantages in running schools, take the enhancement of students' practical ability as the starting point for the formulation of talent cultivation programs, actively carry out the construction of college students' ability cultivation in the aspects of talent cultivation programs, curriculum reforms, teaching methods, etc., push forward the quality education, emphasize the innovation and practice, and improve the competence level of the graduates.

## **6. Education and Teaching Feedback Summary and Suggestions**

Combined with feedback from enterprises, feedback from graduates, and in-depth analysis of existing resources and teaching modes of each institution, there are three innovative points for cultivating high-quality talents in Tangshan institutions under the background of the new engineering discipline as follows:

### **6.1. Deepen Students' Comprehensive Quality Cultivation and Strengthen Practical Teaching Links**

Practical teaching is an important and indispensable part of talent cultivation, and it is a key way to cultivate and improve students' ability to solve practical problems by applying what they have learned. Graduates' evaluation of the training process can help schools understand the deficiencies of daily teaching and learning, so as to provide a direction for improving the quality of education and teaching. Currently, employers have also put forward suggestions for improvement of talent cultivation in schools, mainly: "Strengthening professional practice links and enhancing students' practical ability" (21.73%), and there is still room for further improvement of the degree of help of practical teaching to strengthen the practical ability of graduates. Schools need to continue to deepen the reform of practice teaching, and constantly promote school-enterprise cooperation, industry-teaching integration, to build a more perfect internship practice platform for students, so as to better promote the quality of talent training.

### **6.2. "Projectization" Drives Students' Independent Innovation and Strengthens Students' Innovation and Entrepreneurship Ability.**

To realize the cultivation of innovation and entrepreneurship ability, it is necessary to integrate with many aspects, including the teaching of professional courses, practical and innovative activities, and teachers' scientific research projects. Local undergraduate colleges and enterprises can carry out technical cooperation by integrating resources so as to complement each other's advantages. The integration of industry and education with enterprises can help students exercise their innovative and entrepreneurial abilities, and enable them to master professional technology, discover problems, and solve them comprehensively in practice. In addition, encouraging and guiding students to enter the laboratory from the lower grades to participate in teachers' scientific research projects, innovative experiments and university-enterprise cooperation projects can lay a solid foundation for continuing higher master's and doctoral studies later, and at the same time provide an outlet and direction for the applied talents cultivated at the undergraduate level.

### **6.3. Parallel Enterprise Feedback, Expanding the Boundary of Employment Service**

Employment service and guidance for college students is an important link to help graduates successfully find employment and realize social role transformation as soon as possible. It is not only necessary to enhance the effectiveness of college students' employment guidance by explaining employment policies, analyzing the employment situation, and teaching job-selection skills, but also to focus on educating college students' outlook on life, worldview, and values. Research data on graduates of North China University of Science and Technology show that the 2022 undergraduates engaged in the work and their own career expectations match as high as 80.54%, and companies recruiting pay more attention to conform to the unit's workplace culture and values, accounting for the highest percentage of 34.23%. Therefore, the university needs to

further strengthen career planning counseling, help students establish a basic knowledge of their majors and related employment fields from the beginning of freshmen enrollment, and gradually guide students to establish a sense of career planning, and help them plan their job search, schooling and career development.

## 7. Conclusion

Through the research on the institutions in Tangshan City and the exploration of talent education in each institution, the cultivation of high-quality talents in each institution under the background of new engineering needs to have the following innovative points:

First of all, practical teaching should be emphasized. Colleges and universities should strengthen practical teaching to help students adapt to the working environment faster and improve their practical ability; secondly, establish closer university-industry cooperation, strengthen university-industry cooperation, provide students with more practice opportunities and improve their competitiveness; finally, pay attention to the comprehensive quality of the students and the cultivation of professionalism, and pay attention to the cultivation of humanistic qualities, innovation ability and teamwork ability of the students.

In the process of the construction of "new engineering" in colleges and universities, there are still some problems and challenges. In practice, colleges and universities generally lack sufficient financial and human resources support to equip with first-class teaching equipment and talents. In addition, there are a series of problems such as weak synergy between disciplines and difficulties in student employment in the whole talent cultivation process. In order to solve these problems and challenges, it is necessary to strengthen cooperation and joint promotion with enterprises, and it is also necessary for the government to pay more attention to and support the education and training of talents in colleges and universities. We believe that with the development of

society and technological innovation, the education and training of talents in colleges and universities will also continue to develop and innovate, and cultivate more high-quality talents with the spirit of innovation and practical ability, so as to make greater contributions to the development of the country and society.

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