

# Exploration and Practice of Curriculum System Construction Under the Integrated Talents Training Mode of Higher Vocational Education

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**Abstract:** The integration of higher education as a new talent training model and school level is an indispensable way for better and faster development of applied undergraduates in the future. The exploration and practical experience of Jiuquan Vocational and Technical College's high-level integrated talent training model shows that based on the talent training plan and curriculum reconstruction, the high-level integrated talent training model can provide better support for the development of applied undergraduates.

## 1. Introduction

In May 2014, the "Decision of the State Council on Accelerating the Development of Modern Vocational Education" explicitly proposed "exploring and developing vocational education at the undergraduate level". This is the need and the inevitable choice for the development of higher vocational education in the new era. In 2013, it was reported to the Gansu Provincial Department of Education for approval. It was co-founded by the three parties, Lanzhou University of Technology, Jiuquan Municipal Government, and Jiuquan Vocational and Technical College. The New Energy College of Lanzhou University of Technology was established to provide application-oriented undergraduate education and cultivate undergraduate-level application-oriented personnel. The training mode of vocational education talents at the undergraduate level was introduced. This policy support has added new vitality to the development of vocational education in Jiuquan. At this point, the initial structure of Jiuquan Vocational and Technical College has established an integrated structure of higher vocational-applied undergraduate education (hereinafter referred to as the integration of higher education).

## 2. Overview of the Development of Integrated Talent Training Mode

In the fall semester of 2016, the "3 + 2" promotion of higher vocational colleges is a new model for penetrating higher vocational and undergraduate education and developing applied undergraduate education. This is the first attempt in the pilot program in Gansu Province. Lanzhou University of Technology cooperates with Jiuquan Vocational and Technical College to recruit talents for the "higher vocational-undergraduate '3 + 2' connection", and the enrollment specialty is new energy science and engineering. In the first 3 years, I received high-level vocational education at Jiuquan Vocational and Technical College. After passing the academic performance, I received a graduation certificate from Jiuquan Vocational and Technical College. Qualified academic results can obtain a full-time undergraduate degree, bachelor's degree. At present, the 63 students in the first session have completed the "3" in "3 + 2", that is, the three-year vocational education learning task, passed the assessment of undergraduate colleges and eliminated, and have been admitted to undergraduate colleges to continue their studies for two years.

## 3. Problems Manifested in The Integrated Talent Training Model

There is a big difference between applied undergraduate education and higher vocational education, which leads to a series of problems in the process of integrated education that are not well connected. The main specific performance is as follows:

### **3.1 School Positioning is Not Connected**

The application-oriented undergraduate schools are generally located in teaching and research institutions. In terms of talent cultivation, scientific research, and social service, the emphasis is on the role of scientific research in supporting school development. Taking the number of master's and doctoral programs as an important basis for running a school, the main goal is to build a "first-rate undergraduate college. The orientation of running a vocational college is to train applied talents, mainly to train applied talents for the locality. The concept of running a school is based on competence and is oriented to the needs of the company. The characteristics of running a school are reflected in the service orientation and professional setting. It mainly serves the industry, and the specialty corresponds to the industry applied talent. Due to the different positioning, the two targets do not cross and cannot be well connected.

### **3.2 Talent Training Goals and Models are Not Connected**

According to the "International Standard Classification of Education", general undergraduates should belong to the 5A2 type of colleges, that is, professional education with high-tech requirements, and training of senior professionals in various industries. Higher vocational colleges belong to 5B colleges and universities, the purpose of which is to enable students to acquire the practical skills and knowledge required to engage in a vocational industry or a certain vocational industry, and to cultivate professional and technical personnel. Undergraduate talents require "thick foundation, wide specialty, strong ability, and high quality." Higher vocational talents require skilled operating skills, necessary professional knowledge, and good professional ethics and qualities. Therefore, undergraduate and higher vocational education have very different talent training goals. Talent training goals cannot yet be closely linked.

### **3.3 Major and Curriculum System are not Connected**

Applied undergraduates generally set majors according to disciplines; set the curriculum based on the theoretical system of the discipline, and take "wide caliber, thick foundation" as the standard. The course setting is more about the systematization and integrity of theoretical knowledge, the interconnection of knowledge structures and the needs of students' future development. Higher vocational colleges generally set up majors according to social occupational positions (or job groups), and provide courses according to job requirements. The curriculum system has obvious vocational characteristics. Both professional theoretical knowledge and vocational skills training requirements must be considered. Basic theoretical knowledge follows the principle of "necessary and sufficient". For the purpose of the application, the curriculum must be focused on the practicality and pertinence of theoretical knowledge.

### **3.4 Vocational Skills Training is not Connected**

The practical teaching link of undergraduate education is designed according to the needs of theoretical teaching, and aims to better understand and master the relevant content of theoretical teaching. With the goal of confirmability and research, we focus on cultivating students' research and exploration skills to lay the foundation for future innovation and development. Higher vocational practical teaching and experimental training equipment generally require the integration of practice, employment, and professional characteristics, focusing on the training of professional skills, and the combination of teaching and production practice. Highlight the application of technology, pay attention to technical operations and vocational skills training in real jobs, and lay the foundation for students to obtain professional qualification certificates and adapt to job requirements. Different practical teaching objectives, resulting in the undergraduate and higher vocational experimental training teaching content can not match the connection.

## 4. Status Quo of the Process of Promoting the Integration of High-Quality Talents

### 4.1 Operation Coordination Mechanism

#### 4.1.1 Advance Results

Lanzhou University of Technology established a new energy college in Jiuquan Vocational and Technical College after two years of teaching tasks. Jiuquan Vocational and Technical College established the undergraduate teaching department to complete the first three years of teaching tasks, and the two secondary school units jointly set up teaching and office work; Jiuquan Vocational and Technical College hired the dean of the new energy college as the director of the undergraduate teaching department and the vice-dean through documents. As the deputy director of the undergraduate teaching department, it further reflects the integrated school running pattern led by the new energy college.

#### 4.1.2 Problems

Affected by system factors, the teachers of the undergraduate teaching department, as the main subjects of teaching, belong to the establishment of Jiuquan Vocational and Technical College. However, the main leader of the department is compiled by Lanzhou University of Technology. From the analysis of ownership, the teachers of the undergraduate teaching department need to complete various types of learning, training, data submission, workload reporting calculation, teaching evaluation, and business assessment according to the relevant regulations of Jiuquan Vocational and Technical College. From the perspective of management, the teachers of the undergraduate teaching department need to carry out daily work according to the requirements of the leaders of Lanzhou University of Technology, with emphasis on obstacles such as approval and use of chapters.

### 4.2 Talent Training Program

#### 4.2.1 Advance Results

In 2016, Lanzhou University of Technology, together with Jiuquan Vocational and Technical College, industry experts, and corporate management staff, formulated a new energy science and engineering (high-integration integration) talent training program and implemented teaching. Then continuously revised according to the requirements of the Jiuquan Vocational and Technical College for the formulation of talent training programs and the opinions of Gansu Province, the Ministry of Education and other departments, and added courses such as quality development, university Chinese, and excellent Chinese traditional culture, which were officially finalized in 2018.

#### 4.2.2 Problems

(1) Revision of talent training plan. The formulation of the high-level integrated talent training program is led by Lanzhou University of Technology. However, as the main body of teaching in the past three years, Jiuquan Vocational and Technical College must follow the relevant national vocational education regulations in the teaching process. Therefore, the revision of the talent training plan is often the revision of the main body of the teaching subject to follow the formulation of the lead requirements, repeated delays, seriously lagging behind the teaching plan.

(2) The scientific nature of talent training programs. The scientific nature of the current high-integration talent training program needs to be further demonstrated. In the whole plan, the proportion of courses in the last two years is relatively large, and the amount of theoretical courses in the first three years is heavy and heavy. Judging from the current study situation of the students in the third grade, the one-time pass rate of some courses is less than 80%. Whether there can be any explanations for the matching of the current training system and the way of enrollment is still questionable. It is necessary to undergo a pre-school selection on the training objectives of the major after the admission of the major, focusing on a review of the basic knowledge of mathematics, English, and computer, and the conditional selection can adapt to the current training system, so that high-quality students can be qualified to cultivate.

### 4.3 Construction of the Curriculum System

#### 4.3.1 Advance Results

Since the talent training plan was formulated in 2016, we have held several consultations on the connection between the curriculum system and the higher education. The most important one was in the spring of 2017. Lanzhou University of Technology invited experts and teachers from the active college of this department, the principal of the teaching department of Jiuquan Vocational and Technical College, the director of the administrative department, the deputy director, the new energy engineering college, teachers and others conducted in-depth discussions from the training center. The discussion focuses on the construction of the integrated curriculum system for higher education, the problem of students withdrawing from the completion of one year of study, the problem of students withdrawing from two years of study, the issue of corresponding preparation before and after the course, and the problem of the corresponding professional direction of the fifth year.

#### 4.3.2 Problems

(1) Restricted by the teaching subject, students in the first three years are vocational students, and students in the second two years are undergraduate students. Therefore, the curriculum development in the first three years reflects the characteristics of higher vocational education, such as quality development, university Chinese, and excellent Chinese traditional culture. The last two years mostly reflected the curriculum system of applied undergraduates, with more lectures, lessons, extended courses, curriculum design, and internships. Therefore, the first three years and the next two years have respectively reflected the characteristics of vocational and undergraduate courses, but the transition and connection between three and two years is not smooth.

(2) The student withdrawal mechanism is not sound. For example, if the first and second grade students withdraw from the high-integrated talent training system due to insufficient credits, penalties, and personal reasons, then whether the relevant counterparts of Jiuquan Vocational and Technical College have corresponding receiving mechanisms. After the third grade study is completed, the students who are unable to enter the undergraduate course due to assessment or are unwilling to be promoted to the undergraduate course, whether the curriculum system of the previous three years has met the teaching tasks of higher vocational students and can obtain a higher vocational diploma.

(3) The integrated higher education training model should cultivate applied and skilled undergraduate talents. However, as far as the current curriculum system is concerned, there are no clear explanations and requirements for computer, English, skills certificates, the proportion of practical class hours, whether a certain percentage of internship hours have been completed in the first three years, and the withdrawal mechanism for docking students.

### 4.4 Faculty Building

#### 4.4.1 Advance Results

At present, Lanzhou University of Technology has sent stable teaching management staff to the New Energy College. At the same time, Jiuquan Vocational and Technical College has also set up an undergraduate teaching department. The two departments work together to provide teachers guarantee for the integration of high-level talents.

#### 4.4.2 Problems

The integrated school-based schooling model. The first three years of higher vocational education were conducted with Jiuquan Vocational and Technical College as the main body. The teaching tasks were all selected by outstanding teachers with many years of teaching experience, which guaranteed the teaching quality to a certain extent. However, these teachers have been engaged in higher vocational education for many years, and they have not received systematically training and learning of applied undergraduate education. Therefore, they need training to improve the knowledge and concepts needed for undergraduate teaching. In addition, undergraduate teachers are mainly young teachers, especially some traditional theoretical courses. In fact, it is very necessary for senior teachers with senior professional titles to assume the teaching tasks.

## 4.5 School Resource Sharing

### 4.5.1 Advance Results

After nearly three years of exploration and school running practice, Jiuquan Vocational and Technical College has now built a new energy comprehensive building, a multimedia computer room that can accommodate 80 people, and a university physics laboratory. In addition, various professional workshops, training rooms (labs) are deeply shared with the secondary colleges, laying a hardware foundation for the in-depth training of high-quality integrated talents.

### 4.5.2 Problems

Based on the integration of high-quality talents training model, Jiuquan Vocational and Technical College and Lanzhou University of Technology as the main cooperative school, in the process of sending teachers, should be based on the principle of ensuring the quality of education first. Teachers from Lanzhou University of Technology can improve and help the education, teaching, and research level of teachers in Jiuquan Vocational and Technical College in a short time, and help them. However, in the actual operation process, teaching experience can rarely be shared, and teachers of the undergraduate teaching department basically cannot obtain high-quality educational resources and scientific research projects of Lanzhou University of Technology.

## 5. Expected Goals and Effects of Talent Training in the Integrated Higher Education Model

### 5.1 Constructing a Modern Vocational Education System and Promoting Sustainable Development of Vocational Education

Through continuous advancement and exploration, the existing "3 + 2" model of higher vocational + academic undergraduate has been transformed into a higher vocational + applied undergraduate model, thereby forming a vocational education system with a high degree of convergence between school positioning, training objectives, curriculum system and practical teaching. This will not only greatly reduce the difficulty and cost of teaching management, but also implement the State Council's Decision on Accelerating the Development of Modern Vocational Education to accelerate the establishment of a modern vocational education system and coordinate the development of various types of vocational education. It can also strengthen communication between vocational education and general higher education, and open up the pathway from junior colleges, undergraduates to graduate students. At the same time, it can also build a bridge for students' diversified choices and multi-path talents, promote the sustainable and coordinated development of vocational education in Gansu Province, and comprehensively improve the quality of teaching.

### 5.2 Cultivate Highly Qualified and Skilled Personnel

Cultivating high-quality and highly-skilled personnel can break down barriers to better meet the needs of economic and social development. At the same time, the establishment of a high-level integration model can adapt to the continuous development of the economy and society and the diversified demand for talents at different levels and specifications, and solve the development problems of different levels of vocational education, especially the connection between levels. And it can effectively alleviate employment pressure, effectively improve the quality of students of applied undergraduate education, and then promote the connotation development of higher vocational education, and promote the healthy development of applied vocational and applied undergraduates.

### 5.3 Enhance the Competitiveness and Attractiveness of Vocational Education

Through the effective connection of the integration model of higher education, we can find a breakthrough in the development of vocational education from a systematic perspective. In this way, vocational graduates can have the opportunity to learn applied undergraduate knowledge, thereby obtaining higher education diplomas, and effectively meet the needs of the people to receive higher-level education. It can also integrate and utilize the curriculum resources and equipment resources of vocational education, improve the systematization and quality level of vocational

education personnel training, and cultivate high-quality skilled personnel that meet the needs of society. In addition, looking for a breakthrough in the development of vocational education from a systemic perspective is conducive to resolving the contradiction between high social demand and low recognition by the people, and effectively improving the appeal of vocational education.

## 6. Conclusion

With further adjustment and upgrading of China's industrial structure, higher vocational education needs to provide higher-level skills and application-oriented talents. At the same time, a more complete vocational education system is needed as a support and guarantee. At present, the "New Energy Science and Engineering" major of our school has concluded certain experience in the vocational-undergraduate integrated talent training model through years of exploration and practice. It plays a very good role in breaking through the barriers of higher vocational and undergraduate education, and can provide a higher extension for the development of higher vocational education.

## Fund projects

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