

# Research on the Influence of Training Programs on Talent Cultivation in Universities

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**Keywords:** Talent training model, Training plan

**Abstract:** The quality of talent training in universities is affected to a certain extent by talent training programs. As a railway college established by relying on the development of the industry, two factors should be considered in the construction of the university talent training program with the advantages of the original railway colleges: First, the social development and industry development needs should be used as the standard, and the professional settings and majors should be appropriately adjusted according to the requirements of talent training. Training goals; second, based on the talent training goals, appropriately adjust the training program, training methods and training methods in accordance with the development needs of the industry. This article proposes to build a characteristic discipline group, curriculum system and teaching material construction for railway talent training, and establish a stable railway off-campus practice base for talent training.

## 1. Introduction

Since 2003, my country's railway industry has developed rapidly. It has achieved technological innovation in the fields of public works engineering, communication signals, traction power supply, locomotives and rolling stock, information construction, etc., in plateau railway technology, rolling stock equipment technology, and passenger dedicated line technology. Existing line speed-up technology, heavy-load transportation technology, transportation scheduling technology and other aspects have reached the world's advanced level. The improvement of the scientific and technological content of railway enterprises, as well as technological innovation and management innovation, urgently need a large number of professional and technical personnel who can master modern technology. However, the contradiction between the supply and demand of railway specialty professionals is becoming more and more severe. On the one hand, the total amount of human resources in railway enterprises is insufficient, the knowledge structure of railway enterprises is aging, and there are insufficient talents with high-speed railway technology, information construction, international business knowledge and familiar with new railway technology and equipment; on the other hand, the management system of the original railway colleges and universities The changes in railways and the development of the market economy have diversified the employment options of former railway colleges and universities. These colleges and universities cannot only train talents according to the needs of railway enterprises as they did in the past. At the same time, other colleges and universities have difficulty in providing highly professional graduates for railway development. Therefore, as a railway college established by relying on the development of the industry, with the advantages of the original railway colleges and universities, the research and practice of the railway talent training model and training plan in the new era will provide high-quality talents for the development of my country's railway industry.

## 2. Analysis of the Elements of Talent Training Model and Training Plan

The talent training model refers to a kind of relative training based on certain educational goals, educational concepts, and training goals, following certain working procedures, and adopting certain methods to impart knowledge, ability and quality to the educated, so that it can meet the expected training standards. The fixed organizational framework and operation mode are the structure of knowledge, ability and quality that the school constructs for students and the structural

mode to achieve the combination. The talent training model is composed of four elements: training goal, training system, training process, and training evaluation. Therefore, the talent training model has:

**Timeliness and adaptability.** Higher education has the function of serving the society. Socio-economic development and changes in the industrial structure will have great differences in the knowledge structure, ability and quality requirements of talents, and the corresponding talent training model should be adapted to it. It reflects the times.

**Diversity and flexibility.** Due to the diversification of the specifications and levels of talents in the development of social economy and science and technology, the talent training model presents a structure with a variety of different combinations of elements, or a combined talent training model based on a certain subject variable to adapt to social development And the needs of economic changes. Flexibility is the vivid embodiment of the “people-oriented” educational thought in the design of talent training mode.

**Talent training plan:** It is formulated in accordance with social needs, self-running conditions, and determined talent training specifications. It is a manifestation of talent training at the discipline or professional level. It is a concrete and practical form of talent training goals and specifications, a guiding document for school talent training goals and basic training specifications, and a basic document for monitoring and evaluating the quality of education and teaching. Therefore, it has an impact on the quality of talent training. Improvement has an important guiding role.

### **3. Talent Training Model and Principles for Constructing Training Programs**

#### **3.1 Principles for the Construction of Talent Training Model**

**The principle of training objectives.** The training goal is the general positioning of talent training, and the primary principle of selecting, constructing, developing or innovating talent training models.

**The principle of quality assurance.** Teaching quality is the lifeline of talent training, and a quality standard system that meets the school-running characteristics is constructed to meet the requirements of education and teaching, human development needs, and social development needs.

**The principle of running a school.** Features are the foundation of a school. The talent training model of colleges and universities focuses on the construction of a certain characteristic according to its own school conditions and development potential, and enhances the appearance of the characteristic.

**The principle of professional differences.** The characteristics of talent cultivation stem from the differences in talent cultivation among universities. Due to different social needs, different professional requirements and standards, the talent training models of different professions are different. Therefore, professional differences are an important principle for the selection and construction of talent training models.

#### **3.2 Principles for the Construction of Talent Training Programs**

**Basic principles:** According to the discipline characteristics of the school development, the requirements and needs of the society and the industry for talents; the continuity of talent training, the overall optimization of curriculum arrangements, curriculum sharing, and reasonable allocation of teaching resources. Students master the corresponding knowledge structure during school, so that students can develop their various abilities, qualities and personalities.

The main line of the training program is based on the formation of students' knowledge, abilities, and qualities, with the core of “transmitting knowledge, cultivating abilities and improving quality.”

The structure model of the training program is to integrate and optimize basic courses, professional courses, disciplines and interdisciplinary courses to improve students' abilities and qualities.

#### **3.3 Principles for Selecting Railway Talent Training Programs**

Professional setting: adapt to the needs of railway construction and development, absorb 60 years of experience and accumulation in railway characteristic professional construction, and determine the idea of cultivating applied talents.

Training objectives: to adapt to my country's new industrialization development strategy and the rapid development of railways, establish educational concepts such as "theory and practice" and "quality education", train students to master solid basic knowledge and professional basic theoretical knowledge, and master the latest railway locomotives Such as the basic theory of EMU and professional knowledge in design, manufacturing, maintenance, etc., to form their own professional advantages; at the same time, they pay attention to the cultivation of engineering practice ability and innovative spirit, mission students have strong adaptability and competitiveness after graduation .

Curriculum system: centering on the training goals, according to the needs of national economic and social development, planning according to the comprehensive foundation and subject category foundation, major professional basic modules, and professional basic modules, strengthens the theoretical and practical teaching content that adapts to the modernization of railways, and highlights the railway Professional characteristics, combined with the evaluation standards of the society and enterprises for undergraduate graduates, optimize and integrate the curriculum system, and form a curriculum system based on main courses and highlighting the characteristics of railway majors.

Selection and use of teaching materials: The selection of teaching materials meets the requirements of the country's current new technologies, tracks the current railway development, and timely supplements new theories, new technologies, and new technologies in the rapid development of railways, as well as the latest developments and latest achievements of the disciplines.

Practice system: Explore the training model of school-enterprise-scientific research unit cooperation, and strengthen the practice link. Railway enterprises and schools jointly establish a school-enterprise cooperation base, and enterprises provide a practical environment for schools.

#### **4. Analysis of the Main Factors Affecting the Talent Training Program of the Original Railway Colleges and Universities**

Before the reform of the national higher education management system, there were 11 railway industry colleges and universities in my country, which were set up according to the demand for talents in the development of the railway industry. Advantages and characteristics; Lanzhou Jiaotong University has its advantages and characteristics in transportation and civil disciplines; East China Jiaotong University has its characteristics in transportation engineering; Shijiazhuang Railway Institute has unique characteristics in the fields of road and railway engineering, national defense and traffic emergency engineering; Dalian Transportation The university features rail transit and software engineering. After the reform of the national higher education management system, Shanghai Railway University and Shanghai Railway Medical College were merged into Tongji University. Tongji is the largest civil engineering field in China. Scientific university. Changsha Railway Institute is merged into Central South University and has certain advantages and obvious characteristics in civil engineering and transportation. There are 11 cycads and cycads. In terms of talent training, each school has its own training characteristics.

By analyzing the talent training models and talent training programs of these universities, we can see that in the process of talent training in universities, the traditional characteristics and unique resource advantages of the university have been fully utilized to improve the overall quality of talent training in universities. After these colleges and universities of the former Ministry of Railways are placed under local management, they have established talent training goals and training plans based on social and economic development and corporate needs, and reformed disciplines, talent training models, and practical teaching bases. The overall strength of the school has been continuously enhanced. , The characteristics of running a school are more distinctive, and the quality of talent training is continuously improved. The key influencing factors can be summarized as the following points:

#### **4.1 Advantages of Talent Training Program**

According to the new situation of the development of the railway industry, these schools have established their own talent training goals: adhere to the educational philosophy of “general education, class-based teaching, and advocacy and exploration”; “wide-calibre, thick foundation, emphasis on practice, strong ability, and innovation , High-level, international” undergraduate talent training goal. Persist in the cultivation of broad categories, strengthen general education, consolidate the foundation, and broaden the horizon; highlight the cultivation of scientific research and innovation capabilities, and cultivate compound talents with a sound personality, coordinated development of knowledge, ability, and quality.

Each school is closely linked to the needs of economic and social development, and based on the characteristic disciplines of the original railway colleges and universities, integrates the school's high-quality teaching resources, formulates the construction of characteristic majors, and guides the orderly development of characteristic majors.

Each school has made in-depth and meticulous research on the scientific nature, content, frontier form, diversity, research, advancement, standardization and rigor of the construction of characteristic courses and textbooks, and scientifically positions each course in the talent training system. The status and role of Beijing Jiaotong University puts forward a project-based “learning by research” and “learning by doing” model; engineering and scientific research practice training model; integrated project operation model of subject union” curriculum system to cultivate students' independent learning ability, innovative awareness and exploration of unknown fields. Interests and the comprehensive quality of solving modern engineering problems. The construction of teaching materials stands at the forefront of discipline and professional development, and provides students with the latest knowledge.

According to the characteristics of social needs and professional development, each school forms training goals, training processes and evaluation systems that meet the needs of social development, as well as talent training models to meet the needs of economic and social development.

Relying on the high-quality scientific research platform and experimental resources of the industry and the school, each school establishes a student practice system and an education platform for industry-university-research cooperation, and the training of talents is in line with the needs of the industry. Educational resources inside and outside the school jointly cultivate students' practical ability, scientific awareness, and innovation ability.

#### **4.2 Problems in the Talent Training Program**

The positioning of the talent training model needs to be further clarified. The positioning of the talent training model is established in accordance with the objective needs of the economic and social development for talents. These colleges and universities have vague and unclear positioning of the mode of cultivating talents for national economic development, regional economic development and industrial technology development, because the development of different industries has certain differences in the quality and professional requirements of talents. After the reform of the higher education system, the former railway colleges and universities have cultivated a wider range of students' employment. Therefore, the positioning of the talent training model must adapt to the changes in the form of running schools.

The characteristics of talent training objectives are not distinctive. The talent training objectives of colleges and universities are more uniform and less diverse, and do not reflect the characteristics of different types and different colleges and universities. With the advancement of science and technology and economic development, the formulation of training goals cannot meet the needs of social development.

Talent training programs are different from schools and majors, and the guiding ideology and principles of talent training are also different. Talent training programs should present diversity and characteristics. With the development of science and technology and the changes in the demand for talents in society, the reform of talent training programs lags behind the needs of society.

The talent evaluation system lacks scientificity. The positioning of the talent training model and

the ambiguity in the evaluation of talent training have affected the training of high-quality talents.

## **5. The Construction Path of the Talent Training Program of the Original Railway Colleges and Universities**

### **5.1 Reform of Characteristic Disciplines**

Different types of colleges and universities have their own different characteristics and disciplines. Colleges and universities should carefully analyze the market demand and the advantages and disadvantages of their own development, and formulate scientific and characteristic professional construction plans. With railway high-speed and heavy-duty as the background, the railway industry chain is used to construct the discipline system chain, the product process chain is used to construct the discipline research direction and professional direction, and the discipline professional group with railway characteristics is planned to meet the development needs of the national economy and railway industry.

### **5.2 Deepen the Teaching Practice System**

Increase the proportion of practical teaching so that students have more practical learning time; increase the training and training time of experimental ability and practical ability to improve students' practical ability.

Construct a talent training program that is compatible with the practical teaching system. When formulating talent training programs, highlight practical teaching links and increase the proportion of practical teaching sessions in class hours. In accordance with the principle of “layered training, layered progress, and gradual improvement”, a five-module practical teaching content system is constructed: ability training, course experiment, professional internship training, professional design papers, expansion and innovation.

Strengthen the construction of laboratories and practical teaching bases. Focus on the construction of experimental centers and engineering practice training bases, strengthen the construction of practical teaching bases on campus, and establish a production-learning-research innovation practice base suitable for the cultivation of students' innovative practical ability.

Improve laboratories with railway characteristics, especially EMU characteristics, and use close cooperation with railway enterprises to expand practice bases such as EMUs.

### **5.3 A Teaching Material System with Railway Characteristics Adapted to the Development of Modern Railways**

Specialized professional courses are specially set up on the basis of general general education and subject basic education, showing the individuality of the professional direction. Grasp the development trend of domestic railway rolling stock and urban rail vehicles, and on the basis of in-depth research on the demand for talents, introduce many key technologies and the latest research results of railway development into the construction of courses and teaching materials, forming a scientific curriculum system, and Combine courses from multiple angles for students to choose, so as to improve students' comprehensive literacy.

### **5.4 Take the Road of Industry-University-Research Cooperation and Establish a New and Stable Off-Campus Practice Base**

Actively explore the education model of combining production, teaching and research and school-enterprise cooperation, strengthen the optimal combination of educational resources, promote the combination of classroom teaching and student practice, and cultivate the ability of students to transform knowledge. Through the construction of industry-university-research bases, cooperate with enterprises to establish internship training bases, attract and hire experts and technicians from the internship bases to participate in the teaching and guidance of practical teaching links; and rely on various units to carry out scientific and technological development and scientific research. At the same time, using the close relationship with railway enterprises, we have tried various modes of joint training to expand off-campus practice bases with modern railway

characteristics, so that more students can go to enterprises for internships, and cultivate students' comprehensive quality and ability to solve practical engineering problems. Enhance students' research ability and innovation ability, and cultivate high-quality compound talents with quick start, strong ability and sufficient stamina for the development of railway internationalization.

## **References**

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