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# Research on the Cultivation Path of Innovative Talents in Jilin Universities Under the Background of New-Quality Productive Forces

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**Abstract:** New-quality productive forces are the new driving force for production in the digital economy era, and innovation is the key element for the development of new-quality productive forces. As an important position for cultivating innovative talents, universities are faced with the important task of vigorously cultivating talents adapted to new-quality productive forces, deepening the reform and development of higher education models, and serving regional economic development. Combined with the needs of emerging industries in Jilin Province, this paper analyzes the value logic of cultivating innovative talents in universities, and constructs and explores a "three-dimensional and five-chain" cultivation path for innovative talents around five dimensions: professional construction, curriculum setting, practice platforms, teaching staff, and evaluation mechanisms. It provides a reference for promoting the cultivation of innovative talents in Jilin and the high-quality economic development.

**Keywords:** New-quality productive forces; Universities; Innovative talents; Cultivation; Path

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## 1. Introduction

New-quality productive forces refer to the advanced productive forces in the contemporary era, driven by scientific and technological innovation, led by industrial innovation, and spawned by revolutionary technological breakthroughs, innovative allocation of production factors, and in-depth transformation and upgrading of industries. As an important part of the traditional industrial base in Northeast China, Jilin Province has a large proportion of traditional industries and relatively few emerging industries. The demand for talent in emerging industries is insufficient, while the demand for talent in traditional industries is overly concentrated, leading to an imbalance between talent supply and demand [1]. Under the background of new-quality productive forces, Jilin Province has ushered in an opportunity for comprehensive revitalization and high-quality development. Scientific and technological innovation is promoting the adjustment and transformation and upgrading of Jilin's industrial structure. The promotion and application of cutting-edge technologies have spawned new

industries, new models, and new driving forces, and the demand for high-quality innovative talents has increased accordingly. There is a serious shortage of high-end talent in fields such as high-tech industries and strategic emerging industries [2]. However, at present, the talent training in Jilin's universities is disconnected from the needs of industrial transformation. The setting of professional courses often lags behind the development of industrial transformation, lacking new technologies and processes. Curriculum teaching focuses on theoretical instruction, with insufficient connection to industrial post content, and insufficient attention to the cultivation of students' innovative ability and digital literacy, resulting in graduates being unable to meet the new requirements of provincial industrial posts [3].

## 2. Value logic of cultivating innovative talents in universities under the background of new-quality productive forces

### 2.1. Industry demand traction logic: rigid demand for talent structure in regional transformation

#### 2.1.1. Core characteristics of new-quality productive forces determine talent demand orientation

New-quality productive forces are driven by scientific and technological innovation, showing the essential characteristics of high-tech integration, high-efficiency transformation, and high-quality output. This characteristic requires talents to have interdisciplinary knowledge integration capabilities and technological achievement transformation literacy, which can adapt to the dynamic needs of technological iteration and industrial upgrading [4]. In the process of digital and intelligent transformation of traditional industries and cultivation of emerging industries in Jilin, talent supply needs to leap from the traditional technical application level to the innovation-led level, break through the bottleneck of single skill-oriented talent training, and build a talent capability system in line with the development of new-quality productive forces.

#### 2.1.2. Imbalance between supply and demand forces the reform of training models

There is a significant talent supply gap in the field of regional strategic emerging industries, and the contradiction between supply and demand for high-end R&D positions is prominent. The traditional professional talent training system is disconnected from the actual needs of the industry, making it difficult to meet the talent quality requirements for the development of new-quality productive forces [5]. The new occupational forms spawned by new-quality productive forces have broken traditional disciplinary boundaries, requiring universities to reconstruct the talent knowledge system, break disciplinary barriers, and establish a training framework that can cover multi-field knowledge and adapt to new occupational needs.

### 2.2. University mission undertaking logic: Core carrier of the integration of education, science and technology, and talents

#### 2.2.1. Inevitable requirement for implementing national strategies

Practicing the strategic orientation of "science and technology are the primary productive forces, talents are the primary resource, and innovation is the primary driving force", universities, as the main position for talent training, need to assume the responsibility of supplying talents needed for the development of new-quality productive forces, and build a talent training system compatible with national strategies [6]. Responding to the regional comprehensive revitalization strategy, solving the talent shortage in regional development through independent talent training, providing continuous talent support for the construction of a regional modern

industrial system, and promoting the formation of positive interaction between regional economic and social development and talent training.

#### 2.2.2. Endogenous driving force for the development of universities themselves

New-quality productive forces provide a transformation opportunity for the discipline construction of universities, promoting traditional disciplines to extend to emerging interdisciplinary fields, promoting in-depth connection between discipline directions and regional industrial development needs, and realizing the iterative upgrading and characteristic development of discipline construction [7]. By building a training model integrating "industrial chain-innovation chain-talent chain-education chain", universities can achieve the same frequency resonance between talent training and regional development, strengthen their functional positioning of serving the region, and form differentiated school-running advantages.

### 2.3. Talent growth adaptation logic: Precise connection between competencies and era requirements

#### 2.3.1. Adaptability of core competency dimensions

In terms of innovative ability, it is necessary to break through traditional thinking patterns, possess original research capabilities and disruptive technological research potential, and be able to carry out exploratory work in cutting-edge technological fields to provide innovative momentum for the development of new-quality productive forces [8]. In terms of comprehensive literacy, it is necessary to integrate professional and technical knowledge, digital technology application capabilities, and industrial cognitive levels to form cross-field knowledge integration capabilities, adapting to the development scenarios of multi-technical integration and multi-format collaboration under new-quality productive forces. In terms of practical ability, it is necessary to master the whole-chain transformation skills from laboratory technology R&D to industrial practical application, adapt to the working model supported by projects and platforms, and realize the efficient landing of technological achievements.

#### 2.3.2. Consistency with growth laws

The cultivation of talents for new-quality productive forces needs to follow the phased growth path of "laying a solid foundation - practical training - innovative breakthrough", and build a phased and progressive training system to ensure that talent capabilities keep pace with the development needs of new-quality productive forces. As the core subject of innovative activities, young college students have a high degree of compatibility between their learning ability, adaptability, and innovative potential and the characteristics of rapid technological iteration of new-quality productive forces, and are the core talent reserve force for the development of new-quality productive forces.

## 3. "Three-dimensional and five-chain" cultivation path for innovative talents in Jilin Universities

### 3.1. Discipline and professional optimization: building an industrial-oriented discipline ecosystem

#### 3.1.1. Key disciplines accurately connect to strategic industries

Facing the intelligent transformation needs of traditional advantageous industries in the region, adjust discipline

directions, strengthen knowledge modules and ability training content compatible with industrial upgrading; focus on the upgrading needs of modern agriculture, build characteristic disciplines serving agricultural modernization; layout future industrial fields, cultivate emerging disciplines facing technological frontiers and new industrial tracks, forming a discipline system covering traditional industrial transformation, emerging industrial cultivation, and future industrial layout [9].

### 3.1.2. Interdisciplinary disciplines break through traditional barriers

Establish interdisciplinary colleges or research institutions across colleges, integrate resources from different disciplinary fields, break traditional disciplinary boundaries, and build a multi-disciplinary collaborative talent training platform; set up interdisciplinary degree programs, implement a system combining major-minor enrollment and micro-certificates, and cultivate compound talents with interdisciplinary knowledge backgrounds to adapt to the needs of multi-technical integration under new-quality productive forces.

### 3.1.3. Construction of dynamic adjustment mechanism

Establish a closed-loop feedback mechanism of "industrial demand - discipline setting - talent output", conduct regular professional evaluations, and adjust discipline directions and professional settings according to the dynamic development of the industry; dynamically update professional training content with reference to the technical needs of innovative enterprises in the region to ensure that disciplines and professions keep pace with industrial development.

## 3.2. Curriculum system reconstruction: Consolidating the knowledge foundation for innovative capabilities

### 3.2.1. Modular design of core courses

(1) Technical foundation module: Strengthen the teaching of general cutting-edge technologies such as digital technology and intelligent technology, and build a basic curriculum system covering the core technical fields of new-quality productive forces to lay the foundation for talents' technical application capabilities.

(2) Industrial application module: Embed cases and practical content of the development of key regional industries to help students understand actual industrial needs, improve technical application and industrial adaptation capabilities, and realize the connection between knowledge learning and industrial practice.

(3) Innovative thinking module: Offer courses such as critical thinking, design thinking, and scientific and technological ethics to cultivate students' innovative awareness and thinking abilities, and guide students to form an innovative cognitive framework in line with the development of new-quality productive forces.

### 3.2.2. Upgrading of practical curriculum system

(1) Basic practice level: Build an integrated practice platform of "virtual simulation + basic experiments" to cover the training needs of core professional skills, and improve students' basic operational capabilities and technical cognitive levels through simulated practice scenarios.

(2) Comprehensive practice level: Implement project-based teaching models, transform actual industrial technical problems into curriculum practice projects, and guide students to solve complex problems in a

team collaboration manner to improve comprehensive application capabilities [10].

(3) Innovative practice level: Establish scientific research training programs to support students to participate in high-level scientific research projects, cultivate students' scientific research literacy and innovative practical capabilities, and accumulate experience for subsequent innovative activities.

### 3.2.3. Integration of innovation and entrepreneurship courses

Offer innovation and entrepreneurship courses compatible with the development of new-quality productive forces, connect with regional entrepreneurship support policies and resources, help students understand the entrepreneurial environment and policy orientation, and master basic innovation and entrepreneurship methods. Build a connection chain of "curriculum teaching - competition practice - project incubation", take various innovation competitions as carriers to cultivate innovative projects with market potential, and promote the transformation of innovation and entrepreneurship capabilities into actual results.

## 3.3. Practice platform construction: Building a carrier for industry-university-research collaborative talent training

### 3.3.1. Open sharing of on-campus innovation platforms

Promote the full opening of high-level scientific research platforms in universities to students, set up independent practice spaces for students, provide opportunities to access cutting-edge technologies and scientific research resources, and support students to carry out independent innovative practice activities. Build innovative practice workshops adapted to the development of new-quality productive forces, equipped with cutting-edge technical equipment and tools, to provide hardware support for students' technical R&D and project practice, and create an independent innovative practice environment.

### 3.3.2. In-depth integration of school-enterprise cooperation

Co-build industrial colleges, implement a training model in which schools and enterprises jointly formulate training programs and participate in the teaching process, integrate enterprise resources and industrial needs into the entire talent training process, and realize the precise connection between talent training and enterprise needs. Build industry-education integration training bases, implement apprenticeship training models, allow students to deeply participate in enterprise production practice, and improve practical capabilities and professional literacy in real industrial scenarios. Implement a "demand-achievement-transformation" linkage mechanism, establish a docking channel for technical needs and scientific and technological achievements between universities and enterprises, promote the transformation of university scientific and technological achievements to the industry, and at the same time transform enterprise technical needs into practical content of talent training.

### 3.3.3. School-Local Collaborative Innovation Network

Participate in regional "government-enterprise-school" collaborative research projects, jointly carry out research on key industrial technologies, allow students to participate in actual scientific research and tackle processes, improve the ability to solve actual industrial problems, and promote the in-depth integration of talent training and regional innovative development [11]. Co-build innovation and incubation bases with innovation parks and industrial demonstration zones in the region, provide venues, resources, and guidance support for students' innovative projects, promote the industrialization of students' innovative achievements, and form a school-local collaborative innovative talent training ecosystem.

## 3.4. Teaching staff construction: Cultivating a "Dual-qualified and dual-capable" teaching team

### 3.4.1. Teacher capacity improvement project

Implement the teacher industrial practice plan, requiring professional teachers to regularly carry out practical training in the industrial front line, accumulate industrial experience, integrate actual industrial cases and technical dynamics into the teaching process, and improve the industrial adaptability of teaching content [12]. Carry out special training related to new-quality productive forces, covering cutting-edge technical knowledge, innovative teaching methods, etc., invite industry experts to participate in training and teaching, help teachers update their knowledge systems, and master teaching methods suitable for the cultivation of talents for new-quality productive forces.

### 3.4.2. Innovation of talent introduction and training mechanisms

Set up industrial professor positions, hire technical backbones and leading talents in the industry to teach part-time, introduce cutting-edge industrial technologies and practical experience into the classroom, and make up for the shortage of industrial practice capabilities of university teachers. Cultivate young teacher innovation teams, support young teachers to carry out scientific research projects jointly with enterprises through special plans, improve young teachers' scientific research and innovation capabilities and industrial service capabilities, and build a teaching team with a reasonable structure and outstanding capabilities.

### 3.4.3. Reform of evaluation and incentive systems

Establish a three-dimensional evaluation system of "teaching quality + scientific research achievements + industrial services", incorporate school-enterprise cooperation achievements, talent training quality, and industrial service contributions into teacher assessment content, and guide teachers to focus on the cultivation of talents for new-quality productive forces and industrial services [13]. Give preferential treatment in professional title evaluation and selection to teachers who have made outstanding contributions in regional industrial services and talent training, and set up special rewards to stimulate teachers' enthusiasm and initiative in participating in the cultivation of talents for new-quality productive forces.

## 3.5. Evaluation mechanism reform: Establishing an innovation-oriented evaluation benchmark

### 3.5.1. Optimization of student evaluation system

Break the "score-only" evaluation tendency, build a trinity evaluation system of "knowledge mastery + skill improvement + innovative achievements", incorporate students' innovative achievements into the scope of credit recognition, and recognize students' innovative contributions in technical R&D and project practice. Establish a dynamic tracking mechanism for student growth, record the development process of students' innovative ability and practical ability through growth files, and realize the whole-process and personalized evaluation of students' training process. Introduce enterprise evaluation subjects, allow enterprises to participate in the assessment of students' internships and training and the evaluation of graduation achievements, ensure that the evaluation results are consistent with actual industrial needs, and improve the pertinence of talent training [14].

### 3.5.2. Improvement of teaching evaluation mechanisms

Construct a professional teaching quality evaluation system with "industrial adaptability" and "innovation output

rate" as core indicators, regularly evaluate the adaptability of professional training programs and teaching content to the development of new-quality productive forces, and promote the continuous improvement of teaching quality. Implement third-party evaluation of teaching effects, entrust industry associations and professional evaluation institutions to conduct talent training quality research, objectively evaluate teaching effectiveness from a third-party perspective, and provide a reference for teaching reform [15].

### 3.5.3. Adjustment of scientific research evaluation orientation

Encourage "organized scientific research", guide university scientific research to focus on technical pain points and bottleneck problems in regional industrial development, carry out applied and transformative research, and promote scientific research achievements to serve regional industrial upgrading. Strengthen the evaluation of scientific research education effectiveness, incorporate teachers' achievements in guiding students to carry out innovative practice and cultivating students' scientific research capabilities into scientific research assessment, promote the in-depth integration of scientific research and talent training, and realize the value of scientific research education.

## 4. Conclusion

In summary, the cultivation of innovative talents in Jilin universities under the leadership of new-quality productive forces is essential to realize a positive cycle of "industrial demand traction - talent supply adaptation - innovation-driven development". Through the construction of the internal logic of industrial demand orientation, clarify the core direction and value positioning of talent training; rely on the five implementation paths of "discipline optimization, curriculum reconstruction, platform construction, teacher team building, and evaluation reform" to form a comprehensive and systematic talent training system. Universities need to base themselves on the characteristics of regional industrial development, integrate the innovative genes of new-quality productive forces into the entire process of talent training, provide solid talent support for the comprehensive revitalization of the region, and at the same time provide a reference theoretical framework and practical paradigm for the talent training transformation of universities in similar regions.

## Disclosure statement

The author declares no conflict of interest.

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