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Cultivation of Top Innovative Talents Leads the Formation of New Quality Productivity: Ideal Picture, Realistic Dilemma and Practical Way Forward

Miaomiao Tang[1], Li Sun[2], Zhen Zeng[3,*]

[1]Northwest Normal University, School of Educational Science, 967 anning east road
[2,3]Sichuan Tianfu Information Vocational College, school of Foundation studies, 286 University Town Road
[1]tmm199511tmm@163.com, [2]1134951590@qq.com, [3]394473983@qq.com
**Correspondence Author*

Abstract: ***Top-tier innovative talents possess characteristics of innovation, leadership, sociality, timeliness, and openness, which meet the needs of the development of new quality productivity. Vigorously cultivating top-tier innovative talents is a key factor in leading the formation of new quality productivity. The cultivation of top-tier innovative talents generates the connotation of new quality productivity, and the formation of new quality productivity also influences the training concepts and quality structure of top-tier innovative talents. There is an inherent logic of two-way drive and mutual promotion between the two. With the acceleration of the current new round of scientific and technological revolution and industrial transformation, the cultivation of top-tier innovative talents leading to the formation of new quality productivity faces practical dilemmas such as the lack of future-oriented thinking in talent cultivation, insufficient coordination in the talent cultivation system, and a lack of diversity in the types of talent cultivation. It is necessary to take a holistic approach, focusing on integrating educational resources, incubating cross-border innovation, advancing human-machine cooperation, adhering to open training, and highlighting regional characteristics to continuously exert efforts, explore new paths for the cultivation of top-tier innovative talents, and lay a talent foundation for accelerating the formation of new quality productivity. aggressive behavior in older preschoolers has long been a nuisance to kindergarten teachers and parents, and it is a common yet difficult problem in society. This study recorded the proportion, context, and reasons for aggressive behavior in older preschoolers at the Tianfu New Area Experimental Kindergarten in Chengdu. Combining the physical and mental development patterns of older preschoolers, methods such as observation records and situational analysis were used. Through real confrontation, observation, analysis, and exploration, effective ways to reduce and correct aggressive behavior in older preschoolers were found, with the aim of helping teachers cope with such behaviors.***

Keywords: Top-tier Innovative Talents, New Quality Productivity, Ideal Vision, Realistic Dilemmas, Practical Approaches**.**

1. Introduction

In September 2023, General Secretary Xi Jinping pointed out, "Integrate scientific and technological innovation resources, lead the development of strategic emerging industries and future industries, and accelerate the formation of new qualitative productivity," and emphasized, "Actively cultivate strategic emerging industries such as new energy, new materials, advanced manufacturing, and electronic information, accelerate the formation of new qualitative productivity, and enhance new drivers of development [1]." Currently, a new round of scientific and technological revolution and industrial transformation is deepening. Accelerating the formation of new qualitative productivity is a "catalyst" for achieving China's "parallel development," an "incremental device" for responding to the "unprecedented major changes in a century," and an "accelerator" for realizing the great rejuvenation of the Chinese nation, with extremely important strategic significance [2]. Talents are the most active element in productivity and also the key element in accelerating the formation of new qualitative productivity. To accelerate the formation of new qualitative productivity, it is necessary to smooth the virtuous cycle of education, science and technology, and talents, with a focus on cultivating a large number of high-quality top-notch innovative talents to provide important support for achieving a high level of scientific and technological self-reliance and self-improvement. Top-notch innovative talents are those who have a strong sense of career and social responsibility in various fields such as science, technology, and management, and have made outstanding contributions at the forefront of international science, major national key technology research, and solving major social problems [3]. Therefore, to promote the formation of new qualitative productivity, we must prioritize the cultivation of top-notch innovative talents. At the same time, the cultivation of top-notch innovative talents must also focus on the new requirements of new qualitative productivity for the workforce, striving to cultivate high-quality, diverse, and disruptive top-notch innovative talents to lead the formation and development of new qualitative productivity.

2. The Ideal Vision of Cultivating Top-Notch Innovative Talents Leading the Formation of New Qualitative Productivity

"According to the requirements of developing new qualitative productivity, we should smooth the virtuous cycle of education, science and technology, and talents, and improve the working mechanism of talent cultivation, introduction, use, and reasonable flow [4]." General Secretary Xi Jinping's important judgment highlights the key and fundamental role of talent elements in the formation of new qualitative productivity. The cultivation of top-notch innovative talents provides strategic support and pioneering force for the formation and development of new qualitative productivity

and the realization of Chinese-style modernization, and is a key element in leading the formation of new qualitative productivity.

2.1 The Formation of New Qualitative Productivity Reshapes the Concept of Cultivating Top-Notch Innovative Talents

The cultivation of top-tier innovative talents is a key element and positive variable in the formation of new quality productivity, and at the same time, new quality productivity will also trigger a systematic change in the concept of cultivating top-tier innovative talents. Since the reform and opening up, China has carried out a series of practical explorations in the cultivation of top-tier innovative talents, forming a concept orientation that emphasizes catch-up, selection, and academicism [5]. Currently, a new round of industrial revolution and scientific and technological revolution is reshaping the world map, with modern science and technology represented by artificial intelligence, big data, cloud computing, etc., becoming the most active factors in new quality productivity, and global scientific and technological innovation entering an unprecedented period of dense activity [6]. Against this background, it is necessary to reshape the talent cultivation concept that centers on scientific and technological innovation, integrates interdisciplinary fusion, open cooperation, and combines practice with application to adapt to and lead the scientific and technological changes and development of the new era. "Developing new qualitative productivity does not mean ignoring or giving up traditional industries. We must prevent a rush and bubble, and do not adopt one model [7]." This requires that the concept of cultivating top-notch innovative talents must adhere to starting from reality, adapting measures to local conditions, and providing categorized guidance to ensure the targeted nature of talent work. In general, shaping a concept of cultivating top-notch innovative talents with the goal of developing new qualitative productivity, focusing on students' innovation, sociality, knowledge, intelligence, and internationality, and having cross-border innovative thinking has become an important task of talent cultivation in the new era.

2.2 The Formation of New Qualitative Productivity Enriches the Types of Top-Notch Innovative Talents Cultivated

Under the background of the formation and development of new qualitative productivity, the demand for various types of top-notch innovative talents is becoming increasingly urgent. As the core driving force for social progress and economic development, the development of new qualitative productivity cannot be separated from the support and leadership of talent resources. Therefore, it has become an important task for current social development to vigorously cultivate a group of top-notch innovative talents with excellent innovation capabilities and profound professional knowledge in different types and fields. In terms of talent cultivation, a comprehensive and multi-level strategy should be adopted. It is not only important to focus on the training of high-level talents such as authoritative experts, scientists, and entrepreneurs, but also to pay attention to the in-depth cultivation of grassroots talents such as practical, artisanal, and skilled talents. For example, in the field of science and technology, it is necessary to cultivate scientists and engineers with an international perspective and cutting-edge thinking to make major breakthroughs in key technologies and core areas and promote the in-depth development of scientific and technological innovation; in the field of economic management, it is necessary to cultivate entrepreneurs and managers with strategic vision and innovative spirit to lead enterprise innovation and development and enhance the competitiveness of the national economy; in the fields of education, culture, and art, there is an urgent need to nurture and incubate a group of top-notch innovative talents who are both innovative and creative in practical, artisanal, and skilled talents. They will be an important force in promoting the comprehensive progress of society, introducing new teaching concepts and methods into the field of education, promoting the reform and innovation of the education system; excavating and inheriting excellent cultural heritage in the cultural field, promoting the prosperity and development of culture; creating artistic works with era characteristics in the field of art, enriching people's spiritual and cultural life. In addition, green transformation also relies on the support of top-notch innovative talents. Green transformation involves many aspects such as the optimization and upgrading of industrial structure, the adjustment of energy structure, and the protection of ecological environment. It requires a group of top-notch innovative talents with green concepts, environmental awareness, and innovation capabilities to lead and promote, so as to promote the development of green industries and make contributions to the green and sustainable development of the economy and society.

2.3 The Formation of New Quality Productivity Reconstructs the Quality Structure of Top-notch Innovative Talentshe Formation of New Quality Productivity Enriches the Types of Cultivating Top-Tier Innovative Talents

The fourth industrial revolution marked by digital twin technologies such as big data, artificial intelligence, cloud computing, and 5G has brought destructive impacts on traditional industries, making "change" and "reshaping" new keywords for industrial development [8]. Every change of era will promote the transformation of knowledge and the renewal of concepts, which is the inevitable result of the change of era. The quality structure of traditional innovative talents includes three aspects: knowledge, ability, and personality [9], which is difficult to effectively cope with the new round of technological changes and the realistic needs of China to win the initiative in international competition, achieve high-level scientific and technological self-reliance and self-improvement, and realize the great rejuvenation of the Chinese nation. The new quality productivity development strategy is the key for China to gain advantages in the fierce global competition in the new era, and it is an inevitable requirement to achieve high-level scientific and technological autonomy, seize the commanding heights of development, cultivate new competitive advantages, accumulate new development momentum, and enter the forefront of innovative countries [10]. The formation and development of new quality productivity cannot be separated from a group of top-notch innovative talents that fit with it. It is necessary to be able to skillfully use new quality production

tools to create innovative production values and promote the continuous progress of productivity. This puts forward new requirements and higher standards for the quality structure of top-notch innovative talents. In other words, top-notch innovative talents need to have high-order qualities centered on "innovation ability", including three dimensions: cultural foundation layer, autonomous development layer, and social participation layer, covering nine qualities such as interdisciplinary literacy, scientific spirit, cutting-edge knowledge, lifelong learning ability, innovation ability, transferable literacy, practical literacy, communication and cooperation, and home country feelings [11]. That is, based on top-notch innovative talents who have the qualities of embracing the world, daring to be the first, critical thinking, cooperative spirit, etc., and can carry out original and disruptive scientific and technological innovations, top-notch innovative talents who are supported by big data, artificial intelligence, new energy technologies, and can achieve revolutionary breakthroughs in technology, innovative allocation of production factors, and deep transformation and upgrading of industries, so as to lead the formation of new quality productivity and lay a solid talent foundation for realizing Chinese-style modernization.

2.4 The Formation of New Quality Productivity Optimizes the Training Methods of Top-notch Innovative Talents

To answer the "exam question" of new quality productivity well, it is necessary to increase the training efforts of top-notch innovative talents, strive to cultivate more first-class scientific and technological leaders and innovation teams, and cultivate socialist builders and successors with comprehensive development in morality, intelligence, physical fitness, aesthetics, and labor [12]. To achieve this goal, it is necessary to continuously optimize the training methods of top-notch innovative talents. At present, playing the role of digital empowerment and promoting teaching reform is one of the main manifestations of optimizing the training methods of top-notch innovative talents under the background of the development of new quality productivity. By using advanced artificial intelligence technology, innovative education and teaching scenarios are created, and application models such as digital teaching, intelligent evaluation, and precise governance are explored and practiced. For example, in terms of digital teaching, by building online teaching platforms, remote teaching and real-time interaction are realized, breaking the limitations of time and space, and making high-quality educational resources widely shared; in terms of intelligent evaluation, with the help of artificial intelligence technology, students' learning situations are precisely analyzed, and personalized learning suggestions and feedback are provided for teachers and students; in terms of precise governance, an education informatization platform is built to achieve comprehensive monitoring and management of educational resources, teaching quality, education policies, etc., improving the efficiency and level of education management. In addition, we should increase support for young scientific and technological talents in universities, providing long-term, high-intensity, and stable support at the beginning of their academic careers, allowing for trial and error and tolerating failure. This encourages young talents to dare to sit on the "cold bench" and venture into uncharted territories, leading to important original and disruptive achievements [13]. We should promote the deep development of the integration of science and education with industry and education, and strengthen the collaborative mechanism of "industry, academia, research, and application." In the fields of basic research and technological innovation, especially in key links such as technology transfer and achievement transformation, we advocate for multi-party collaboration and work together to cultivate and enhance top-notch innovative talents.

2.5 The Formation of New Productive Forces Transforms the Environment for Cultivating Top-notchhe

innovative talents. In the process of cultivating top-notch innovative talents, a suitable growth environment plays a crucial role, especially against the backdrop of the continuous development of new productive forces. The cultivation environment for top-notch innovative talents is undergoing profound changes. Establishing an innovative talent ecosystem is a guarantee measure to accelerate the aggregation of top-notch innovative talents and an important way to create a good innovation culture and atmosphere. We should strive to form an innovative talent ecosystem that centers on talent, powered by innovation, based on collaboration, aimed at sharing, guided by green principles, and characterized by openness, providing comprehensive, full-chain, and full-process support and services for innovative talents [14]. Moreover, with the continuous advancement of science and technology and the rapid upgrading of industries, the knowledge structure and skill requirements for talents are also constantly changing. This requires the talent cultivation environment to keep pace with the times, continuously updating educational content and teaching methods to meet new development needs. The trend of globalization and informatization means that talent cultivation is no longer limited to a single country or region but needs to be carried out through cooperation and exchange within a broader scope. Therefore, the environment for cultivating top-notch innovative talents also needs to be open and inclusive, capable of attracting and gathering outstanding talents and resources from around the world.

3. Realistic Difficulties in Leading the Formation of New Productive Forces through the Cultivation of Top-Notch Innovative Talents

New quality productivity is different from the general new quality of productivity; it belongs to the systematic new quality of productivity, which will bring profound adjustments to the world economic pattern and trigger the fission and reorganization of the international power layout [15]. In this transformation, talent competition becomes an important factor in determining the status of countries in the new global economic pattern. Therefore, accelerating the formation of new quality productivity lies in the cultivation of high-quality top-tier innovative talents. Currently, China has made quite effective explorations in the cultivation of top-tier innovative talents, but it still faces many challenges and dilemmas.

3.1 Lack of Future Orientation and Global Perspective in

the Thinking of Cultivating Top-Notch Innovative Talents

To develop new productive forces, it is necessary not only to highlight technological innovation and develop strategic emerging industries but also to conduct advanced research on future technologies and pre-layout future industries [16]. The cultivation of top-notch innovative talents is a fundamental, long-term, global, and strategic major task, which requires focusing on the future orientation, systematic nature, and foresight of the thinking of cultivating top-notch innovative talents. Currently, the lack of future orientation in the thinking of cultivating top-notch innovative talents is mainly reflected in the insufficient ability to foresee future technological development trends and market demands, as well as the inadequate comprehensive grasp of the quality of talents needed for future social development. The urgent need to develop new productive forces and win international competition requires that the cultivation of top-notch innovative talents must have forward-looking and strategic thinking, be able to accurately judge the direction of future technology and industrial development, and the core literacy and capability requirements of talents needed for future society. However, in some current practices of cultivating top-notch innovative talents, there is often too much focus on current technology and market demands, while ignoring future development trends and changes. This leads to talents cultivated in the short term may have certain competitiveness, but it is difficult to adapt to the rapid development and changes of future society. Therefore, we need to strengthen the future orientation of the thinking of cultivating top-notch innovative talents, focus on in-depth research and analysis of future technological and industrial development trends, and the comprehensive grasp of the quality of talents needed for future society, so as to cultivate more top-notch innovative talents with foresight, innovation, and adaptability.

3.2 Insufficient Continuity (Stages, Links) and Coordination of the Top-Notch Innovative Talent Cultivation System

General Secretary Xi Jinping emphasized in his important speech at the fifth collective study of the Political Bureau of the CPC Central Committee: "Building an educationally strong country, a scientifically and technologically strong country, and a strong country of talent has intrinsic consistency and mutual supportiveness. We must organically combine the three and promote them in a coordinated manner to form a multiplier effect that drives high-quality development." [17] To develop new productive forces, we must deeply understand the internal connections of education, science and technology, and talent work and enhance the coordination of the top-notch innovative talent cultivation system. Education, science and technology, and talent each play an important role in the cultivation of top-notch innovative talents. Science and technology provide cutting-edge knowledge and technical support for talent cultivation, education is the foundation and main approach for talent cultivation, and talent is the core force of technological innovation and educational development. Currently, the top-notch innovative talent cultivation system still faces value dilemmas in the coordinated development of education, science and technology, and talent. That is, there are certain differences in the value orientation of education, science and technology, and talent; mechanism dilemmas, that is, the coordination mechanism for the integrated development of education, science and technology, and talent needs to be improved; action dilemmas, that is, there are difficulties in macro-system docking and a phenomenon of alienation at the meso and micro levels and result dilemmas, that is, the policy effects of integrated development are difficult to verify and there is uncertainty [18]. This has, to a certain extent, limited the comprehensive development of top-notch innovative talents and is not conducive to promoting the formation and development of new productive forces.

3.3 Lack of Diversity and Characteristics in the Types of Top-notch Innovative Talent Cultivation

The cultivation of top-notch innovative talents is a fundamental strategic project for achieving a strong education country, a strong science and technology country, and a strong talent country. To develop new productive forces, it is necessary to not only traction top talents in basic disciplines, interdisciplinary disciplines, and emerging disciplines that drive source innovation, but also engineering and technical talents and great craftsmen and skilled artisans who serve the new industrialization path; not only scientists are needed, but also first-class science and technology leaders and innovation teams, as well as a large number of young scientific and technological talents, and even more so, a large number of comprehensively developed builders and successors dedicated to Chinese-style modernization [19]. In other words, accelerating the formation of new productive forces requires the cultivation of various types and fields of top-notch innovative talents. However, in practice, top talents are often narrowly defined as people with excellent disciplinary learning abilities or those with learning talents, including doctoral students at the top of the pyramid of talent cultivation in universities, students in various colleges and academies piloted within universities, as well as gifted students in experimental classes, elite classes, and youth classes set up by universities and middle schools, all of whom are regarded as top talents or potential top talents [20]. In addition, there is still a problem of single cultivation goals and training models in China's top-notch innovative talent cultivation, which undoubtedly narrows the scope of top-notch innovative talent cultivation, leading to a lack of diversity in the types of top-notch innovative talent cultivation in China, restricting the further formation and development of new productive forces.

3.4 The Excellence and Originality of Top-notch Innovative Talent Cultivation Ability (Independent Cultivation) is Weak

Strengthening the independent cultivation of talents is the fundamental way to achieve national independent innovation [21]. However, China still needs to further strengthen the independent cultivation of top-notch innovative talents. Against this backdrop, the demand for high-level top-notch innovative talents that can lead and support the development of new productive forces and improve the excellence and originality of independent cultivation of top-notch innovative talents is becoming increasingly urgent. At present, the excellence and originality of China's independent cultivation of top-notch innovative talents are mainly reflected in the

need to improve the scale and quality of high-end talent cultivation, insufficient cultivation of innovative thinking and innovation ability, and insufficient interdisciplinary integration. In terms of the scale and quality of high-end talent cultivation, although China's higher education system is continuously expanding, compared with the international first-class level, the supply of high-end talents is still insufficient. Especially in some key areas and core technologies, there is a large gap in high-end talents, which is difficult to meet the needs of national development and industrial upgrading; in terms of the cultivation of innovative thinking and innovation ability, due to the limitations of educational concepts and teaching methods, rigid curriculum settings and disciplinary systems, lack and insufficiency of practical teaching links, as well as the constraints of the lack of innovation atmosphere and culture, the development of students' subjectivity and innovative thinking is neglected, resulting in students lacking the enthusiasm and motivation for innovation, and it is difficult to form a talent team with innovative spirit and innovation ability; in terms of interdisciplinary integration, disciplinary barriers limit the exchange and integration between different disciplines, teachers with cross-disciplinary research and teaching experience are relatively scarce, and curriculum settings lack flexibility, etc., making the cultivation of top-notch innovative talents often limited to a specific field, lacking cross-disciplinary vision and thinking, and difficult to adapt to the changes in talent demand brought about by new productive forces. This contradicts the cross-disciplinary cooperation and innovation advocated by new productive forces. Finally, the core of independent talent cultivation is high-quality development. Cultivating more various types of innovative talents that adapt to high-quality development and high-level self-reliance and self-improvement, especially top talents that can solve "brain-blocking," "neck-blocking," and "throat-blocking" problems [22], will lead the formation of new productive forces and inject a steady stream of power into the country's long-term development.

4. The Practical Path of Leading the Formation of New Productive Forces through the Cultivation of Top-notch Innovative Talents

A new round of scientific and technological revolution and industrial transformation is accelerating, and top-notch innovative talents are the most important strategic resource to promote and enhance the country's core competitiveness and an important support for achieving high-level scientific and technological self-reliance and self-improvement. Building a strong education country and becoming a world-important talent center and innovation highland requires efforts in top-notch innovative talents and the ability to independently cultivate talents. This is the key move and breakthrough to meet the needs of developing new productive forces and realizing Chinese-style modernization for talent [23]. Therefore, it is necessary to base on the overall situation and explore the cultivation of top-notch innovative talents from five aspects: integrating educational resources, incubating cross-innovation, advancing human-machine cooperation, adhering to open cultivation, and highlighting regional characteristics, leading the formation of new productive forces.

4.1 Incubating Cross-Innovation: Cultivating High-Quality, Disruptive, and Multidisciplinary Top-Tier Innovative Talents

High-quality laborers are the core elements in shaping new productive forces. Only high-quality innovative talents can truly transform science and technology into new productive forces [24]. The focus of forming new productive forces is to incubate cross-innovation and cultivate high-quality, disruptive, and multidisciplinary top-tier innovative talents. On the one hand, we need to strengthen professional training, paying special attention to the cultivation of top-tier innovative talents in fields such as mathematics, science, technology, and engineering. We must keep up with the pulse of the development of new productive forces, continuously optimize professional settings, and timely add majors closely related to new technologies, new industries, and new business forms to ensure that educational content is closely aligned with the development needs of strategic emerging industries and future industries. At the same time, we should actively promote the digital and intelligent transformation of professional courses, integrate advanced information technology into teaching, and cultivate students' practical innovation capabilities and awareness. They should dare to venture into uncharted territories to produce important original and disruptive results, providing solid talent support for the formation and development of new productive forces, social technological innovation, and industrial upgrading, and helping our country gain a more favorable position in global competition. On the other hand, to enhance the talent vitality of new productive forces, we need to actively strengthen the cross-boundary introduction of top-tier innovative talents. By cultivating top-tier innovative talents across disciplines, fields, and industries, we can effectively break down academic barriers, field barriers, and industry fences, and introduce a group of high-level talents with cross-boundary thinking and outstanding innovation capabilities. In addition, we should pay special attention to the introduction of top-tier innovative talents across countries, regions, and cultures, promote the smooth flow of talent resources, attract high-level top-tier innovative talents globally, break through national boundaries, regional restrictions, and cultural barriers, promote the deep integration of science and technology, education, and industry, broaden talent horizons, inject new vitality into the sustainable development and progress of society, and enhance international competitiveness.

4.2 Promoting Human-Machine Collaboration: Cultivating Top-Tier Innovative Talents with AI Literacy Supported by Digital Intelligence

Faced with the disruptive changes in the fundamental logic of education caused by new technologies such as artificial intelligence, the ways of acquiring and supplying knowledge have undergone revolutionary changes. It is urgent for higher education institutions to reshape the talent cultivation paradigm and build a high-quality education and teaching system supported by digital intelligence [25]. Cultivating students' AI awareness, innovative thinking, AI capabilities, and AI social responsibility are the core elements of literacy-oriented education. AI awareness, as a unique manifestation of "awareness" in the digital intelligence era, highlights individuals' sensitivity, understanding, and

judgment of AI development [26]. On the one hand, we can create a new educational field of "human-machine" dynamic interaction and real-time connection using emerging technologies such as the Internet of Things, 5G networks, and virtual reality. This helps to perceive and recognize students' behaviors, discover their learning motivations, interests, styles, personalities, and strengths, and then precisely locate knowledge, skills, and literacy gaps, aiding in the personalized and precise cultivation of top-tier innovative talents. At the same time, we can deepen the cultivation of students' core AI literacy, actively expand and promote AI literacy and capability education, enhance students' practical abilities and innovative thinking, strengthen project-driven learning models, and allow students to be exercised and inspired in organized scientific research activities. On the other hand, we should improve the cultivation mechanism of top-tier innovative talents, forming a close coupling relationship with teams, platforms, projects, and other elements, effectively transforming the scientific research advantages of large teams, large projects, and large platforms into educational resources and advantages, and further promoting students' comprehensive development.

4.3 Integrating Educational Resources: Cultivating Top-Tier Innovative Talents Who Foster New Industries, Models, and Dynamics

Currently, the disconnection between talent cultivation and production and innovation practice in China is quite prominent, which has become a major bottleneck restricting innovation-driven and high-quality development [27]. To this end, it is imperative to integrate educational resources to promote the integrated development of education, science, and technology to aid in the cultivation of top-tier innovative talents. On the one hand, universities, as a gathering place for education, science and technology, and talent, bear the significant mission of cultivating outstanding talents for the party and nurturing pillars for the country. Universities can adjust and optimize the discipline layout precisely, accelerate the construction of basic disciplines facing future industries, and build a systematic and forward-looking discipline system. Actively explore and establish innovation platforms such as future industry talent training bases to provide students with practical training opportunities in real scenarios. At the same time, strengthen the construction of the teaching staff. An excellent teaching staff is key to cultivating top-tier innovative talents. Increase efforts to cultivate and introduce high-level, innovative teachers, encourage teachers to participate in scientific research activities, and transform research results into teaching resources to provide students with better learning environments and conditions. On the other hand, boldly carry out research-based teaching, transform research resources into teaching resources, support undergraduate students to enter laboratories, allow graduate students to participate in scientific research projects and undertake research topics in their first year, provide extensive and in-depth scientific research practice opportunities, explore research interests, and strengthen scientific research training [28]. By integrating educational resources, we aim to cultivate top-notch innovative talents with originality, breakthroughs, and subversiveness through an integrated approach of education, research, and production. This strategy is designed to lead the formation and development of new qualitative productive forces.

4.4 Adhere to Open Training: Cultivate High-end, Original, and Applied Top-notch Innovative Talents Through Deep Integration of Industry, Academia, and Research.

Top-notch innovative talents are decisive factors and the main driving force in forming new qualitative productive forces. They play a crucial role in advancing scientific and technological innovation, especially original and subversive innovations, accelerating the achievement of a high level of scientific and technological self-reliance and self-improvement, and winning the battle for key core technologies [29]. To cultivate new qualitative top-notch innovative talents and accelerate the formation of new qualitative productive forces, it is necessary to promote the integration of industry, academia, and research in the training of top-notch innovative talents with an "open innovation" concept [30]. Actively advance the integration of industry, academia, and research, and take proactive steps in technology transfer. On the one hand, to further strengthen the training of new qualitative top-notch innovative talents, special attention should be paid to the educational role of technology companies. Strengthen the educational functions of R&D teams, postdoctoral workstations, and laboratories in industries, especially technology companies, and provide richer academic resources and experimental platforms for the training of new qualitative top-notch innovative talents through deep integration of industry, academia, and research, integration of science and education, school-enterprise cooperation, and joint training by dual-teacher teams. On the other hand, proactive efforts should be made to accelerate the transformation of scientific and technological achievements into real productive forces and help industrial transformation and upgrading. Through deep linkage between applied basic research and industrial R&D, closed-loop feedback and rapid iteration of theory and technology, and opening up the channels between the supply and demand sides of scientific and technological achievements, we aim to transform scientific and technological achievements from campuses to enterprises, from laboratories to production lines, and from academic papers into real productive forces creatively, forming a strong new driving force for the accelerated development of new qualitative productive forces [31].

4.5 Implement Local Conditions: Cultivate Indigenous Top-notch Innovative Talents with Regional Characteristics.

"Regions should adhere to starting from reality, establish first and then break, adapt measures to local conditions, and provide categorized guidance. Based on local resource endowments, industrial foundations, research conditions, etc., they should selectively promote the development of new industries, new models, and new driving forces, transform and upgrade traditional industries with new technologies, and actively promote the high-end, intelligent, and green development of industries [32]." This provides a scientific method and path for the development of new qualitative productive forces and also sets requirements and expectations for regions to highlight local characteristics and tailor the cultivation of indigenous top-notch innovative talents

accordingly. To achieve this expectation, regions need to adhere to starting from reality and explore practical paths that fit the local context for top-notch innovative talents to lead the formation of new qualitative productive forces. Taking Hubei Province as an example, Jingmen City in Hubei Province is an important industrial city in the province and has entered the top three cities with distinctive lithium battery industries nationwide. Its lithium battery industry has developed along the entire chain, and the automotive industry has entered the new energy track. The development of the industry is inseparable from the support of talents. Jingmen City needs to cultivate a group of top-notch innovative talents who can use new technologies such as artificial intelligence, big data, and green and low-carbon technologies to shape new driving forces and advantages for development and help cultivate new qualitative productive forces in line with local conditions. As an "old industrial base," Huangshi in Hubei focuses on key industries such as steel, non-ferrous metals, and building materials, continuously explores deep technical transformation and innovation, cultivates and grows emerging industries such as electronic information and biomedicine, and proactively layouts future industries such as hydrogen energy. To achieve this transformation and upgrading, Huangshi needs to cultivate a group of top-notch innovative talents who can keenly capture new trends in the market and technology, possess professional knowledge and exquisite technical skills in industries such as steel, electronic information, biomedicine, and hydrogen energy, and can transform and apply innovative achievements, injecting new vitality into economic development and promoting industrial transformation, upgrading, and high-quality development with more new qualitative productive forces.

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Author Profile

Miaomiao Tang received her B.S. in Education from Sichuan Normal University in 2020 and her M.S. in Education from Xihua Normal University in 2023.From 2020-2023, she was engaged in research in China in the areas of principles of preschool education, preschool teacher education, and preschool education administration. She is currently pursuing his PhD at Northwest Normal University.

Li Sun a lecturer who conducts research on the theories and practices of Chinese martial arts education. Currently, she holds a position at Sichuan Tianfu Information Vocational College.

Zhen Zeng Associate Professor, Doctor of Management. Currently, she is the dean of foundation school, Sichuan Tianfu Information Vocational College. Her major research directions are educational management and human resource management.