# Research on Pathways for Higher Vocational College Libraries to Support Innovative Talent Cultivation

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## Abstract

The Third Plenary Session of the 20th CPC Central Committee explicitly stated that education, science and technology, and talent constitute the fundamental and strategic support for Chinese modernization, that higher vocational colleges serve as a crucial vehicle for the national innovation system, and that innovative talents have become the core driving force for economic transformation and upgrading. This paper elaborates on the necessity of library participation in the cultivation process of innovative talents in higher vocational colleges, conducts an in-depth analysis of existing problems such as lagging resource supply and inadequate cultivation of interdisciplinary capabilities, and proposes targeted optimization pathways including strengthening library resource development, optimizing library service models, and enhancing information literacy education, aiming to accelerate the cultivation of innovative talents in higher vocational colleges and improve students' comprehensive innovative abilities.

## Full Text

### Research on the Path of Innovative Talent Cultivation Assisted by Higher Vocational College Libraries

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## Abstract

The Third Plenary Session of the 20th CPC Central Committee explicitly stated that education, science and technology, and human talent constitute the foundational and strategic support for Chinese modernization. Higher vocational colleges serve as crucial vehicles for the national innovation system, and innovative talents have become the core driving force behind economic transformation and upgrading. This paper elucidates the necessity of higher vocational college libraries' participation in cultivating innovative talents, thoroughly analyzes existing problems such as lagging resource supply and insufficient interdisciplinary competency development, and proposes targeted optimization pathways including strengthening library resource construction, optimizing library service models, and enhancing information literacy education. The aim is to accelerate the cultivation of innovative talents in higher vocational colleges and improve students' comprehensive innovative capabilities.

**Keywords:** higher vocational colleges; libraries; innovative talents

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Against the backdrop of accelerating global technological revolution and industrial transformation, the cultivation of innovative talents has become a major national strategy. Higher vocational colleges, as training bases for technical and applied talents, should prioritize enhancing students' innovative and practical capabilities. As the knowledge hub of higher vocational colleges, libraries have long undertaken vital functions including resource integration, learning support, and information dissemination. In the process of cultivating innovative talents, libraries serve not only as venues for students to access information and resources but also as crucial platforms for promoting interdisciplinary exchange and fostering innovative thinking and practical abilities. Therefore, an in-depth exploration of how libraries in higher vocational colleges can assist in cultivating innovative talents has become an urgent issue in both educational research and practice.

## 1. Necessity Analysis of Libraries in Innovative Education

The rapid development of technological fields such as artificial intelligence and big data signifies that knowledge is being updated at an unprecedented pace. By continuously updating their resource repositories and augmenting academic resources in emerging domains, libraries ensure that students have timely access to the latest scholarly achievements and industry trends. Through multidimensional resource provision, libraries not only mitigate the contradiction between teaching resources and industrial development but also provide comprehensive lifecycle information support for students' innovative research projects.

### 1.1 Resource Integration and Interdisciplinary Innovation Cultivation

Libraries are not merely venues for learning but also catalysts for intellectual collision and innovative thinking. As disciplines and industries develop rapidly, new research outcomes, technological advances, and industrial dynamics continuously emerge, placing higher demands on the cultivation of innovative talents. By integrating vast academic resources, industry reports, technical literature, patent databases, and more, libraries provide students with a window to access cutting-edge knowledge. Students can obtain diverse, interdisciplinary, and cross-domain information resources at the library, which powerfully supports the stimulation of innovative thinking and the development of innovative practice. By effectively guiding students to acquire and utilize these resources, libraries not only help them broaden their horizons but also enable them to understand the frontiers of current technology and academic research, thereby cultivating their innovative capabilities and problem-solving skills.

### 1.2 Cultivating Innovation Awareness and Spirit

The cultivation of innovative talents depends not only on deep professional knowledge but also on interdisciplinary collaboration and exchange. Libraries not only possess abundant academic resources but also provide an interactive platform for students and faculty through various academic exchange activities. Such exchanges help break down disciplinary barriers, enabling students to draw new ideas and inspiration from the intersection of different fields and stimulating innovative thinking, which enhances their interdisciplinary innovation capabilities. For instance, libraries can establish innovation laboratories and host innovation competitions to provide practical platforms for students, encouraging them to test theories through hands-on practice and develop problem-solving skills.

### 1.3 Cultivating Information Literacy and Digital Competence

In today's information society, information literacy and digital competence have become essential qualities for innovative talents. Through information literacy education, libraries can help students master skills in acquiring, analyzing, evaluating, and applying information. This includes not only how to efficiently use library resources for academic research but also how to effectively filter and integrate information within the context of new technologies such as the Internet and big data. By conducting information literacy training, digital skills workshops, and other activities, libraries enhance students' digital capabilities, enabling them to proficiently utilize various digital tools and resources to support their innovative work. Cultivating these competencies helps students not only acquire necessary knowledge when facing complex information environments but also develop independent thinking and problem-solving abilities.

### 1.4 Providing Space and Platform for Innovation Practice

As educational concepts evolve, the traditional functions of libraries are gradually shifting toward greater practicality, interactivity, and innovation. Many higher vocational college libraries have begun constructing innovation laboratories, maker spaces, and digital media studios for innovative practice. By equipping students with advanced facilities, tools, and professional guidance, libraries enable them to integrate theoretical knowledge with practical operations, further enhancing their innovative capabilities.

### 1.5 Stimulating Innovative and Critical Thinking

The cultivation of innovative thinking depends not only on classroom learning but also on inspiring creativity through critical reflection on knowledge and intellectual collision. By reading books from different fields in the library, students can access diverse modes of thinking and perspectives, thereby stimulating their own creative thinking. Through organizing debate competitions, academic salons, and other activities, libraries provide platforms for intellectual exchange, prompting students to constantly question and reflect during interactions. This deepens their understanding of knowledge, enhances critical thinking abilities, and provides an ideological foundation for innovation.

## 2. Current Situation Analysis of Innovative Talent Cultivation in Higher Vocational Colleges

Innovative talents refer to interdisciplinary professionals equipped with critical thinking, cross-disciplinary knowledge integration capabilities, practical innovation abilities, and teamwork spirit. They can break through traditional technological boundaries, promote industrial technology iteration, solve complex engineering problems in practice, enhance enterprise innovation efficiency, and promote high-quality regional economic development through technological innovation. The 2025 National Two Sessions explicitly proposed that "vocational education must face new business forms, new technologies, and new occupations to cultivate compound talents with innovative capabilities." Therefore, cultivating innovative talents in higher vocational colleges has become a core proposition for serving the national innovation-driven development strategy and addressing the needs of industrial intelligent transformation. However, current innovative talent cultivation in higher vocational colleges still faces numerous challenges that constrain the quality of cultivation.

### 2.1 Lagging Resource Supply Behind Industrial Technology Iteration

With the rapid development of science and technology, particularly technological transformations in fields such as artificial intelligence, big data, and the Internet of Things, teaching content and resource construction in higher vocational colleges have failed to keep pace with the times. This has resulted in

a disconnect between academic resources available to students and current industrial needs. For example, many higher vocational colleges' textbooks and curricula remain based on relatively traditional technical standards and skill requirements, lacking effective coverage of emerging technologies. Simultaneously, the slow update speed of library resources prevents timely inclusion of the latest scientific research achievements, industry reports, and technological literature, leaving students without sufficient cutting-edge knowledge support for innovative learning. This lag in resource supply not only affects students' learning outcomes but also constrains their capacity development in technological innovation and practical application.

### 2.2 Lack of Carriers for Interdisciplinary Innovation Ability Cultivation

The current education system in higher vocational colleges generally suffers from disciplinary barriers, with professional curriculum design lacking sufficient interdisciplinary crossover and integration. This makes it difficult to provide students with diversified platforms for innovation ability cultivation. Most teaching models in higher vocational colleges still focus on imparting single-discipline knowledge, leaving students with few opportunities to access interdisciplinary innovative thinking and problem-solving methods. However, innovative talents often require interdisciplinary vision and comprehensive abilities to find new solutions at the intersection of multiple fields. For instance, in cultural and creative product design, knowledge of both artistic design and marketing and cultural communication is required.

### 2.3 Incomplete Construction of Innovation Practice Platforms

Although some higher vocational colleges have begun establishing innovation laboratories and maker spaces, overall construction of such innovation practice platforms remains in preliminary stages, with both quantity and quality far from meeting students' innovation practice needs. Many institutions' innovation platforms have outdated equipment that cannot support high-level technical experiments and project development in practice. Furthermore, the utilization rate of innovation practice platforms is low, primarily due to monotonous platform functions and lack of systematic curriculum systems and innovation project support, making it difficult for students to gain practical innovation experience. The organization and management of innovation practice activities are also relatively weak, lacking effective integration with course content. This prevents students from applying theoretical knowledge in practice during innovation activities, thereby affecting the cultivation of innovation ability.

### 2.4 Weak Information Literacy and Digital Competence

With the advent of the information society, information literacy and digital competence have become indispensable core qualities for innovative talents. However, current students in higher vocational colleges are generally weak in

information literacy. Many students lack sufficient abilities in acquiring, filtering, and analyzing information, preventing them from effectively utilizing information resources for innovative thinking. In daily learning, students often rely on traditional paper textbooks and classroom lectures, lacking the ability to acquire and process information through digital tools. Simultaneously, due to insufficient emphasis on information technology curriculum design in some higher vocational colleges, students lack understanding and application abilities of emerging information technologies. This makes it difficult for them to adapt and innovate quickly when facing rapidly changing technological environments. This dilemma not only affects students' learning outcomes but also limits the depth of their thinking and problem-solving abilities in innovation activities.

## 3. Pathways for Higher Vocational College Libraries to Assist in Innovative Talent Cultivation

### 3.1 Strengthening Library Resource Construction to Enhance Support for Innovative Talent Cultivation

Higher vocational college libraries should construct a dynamic, discipline-oriented, and integrated resource system. By aligning with institutional disciplinary characteristics and innovative talent cultivation needs, libraries should actively integrate the latest research achievements and technological resources across disciplines, breaking down disciplinary barriers and promoting interdisciplinary convergence. Through building an intelligent resource management platform, libraries can unify and integrate paper literature, electronic databases, industry reports, patent information, and more to form interdisciplinary resource repositories. For example, for engineering majors, libraries can prioritize introducing cutting-edge technical materials in fields such as intelligent manufacturing and artificial intelligence; for management majors, they can integrate big data analysis tools and industry case databases. Simultaneously, libraries should establish a dynamic response mechanism of "industrial demand-resource update," regularly conducting collaborative research with enterprises and industry associations to timely supplement literature resources in emerging technology fields, ensuring that teaching materials keep pace with industrial technology iteration.

### 3.2 Optimizing Library Service Models to Build a Support Platform for Innovation Education

Libraries need to transform from resource centers to innovation service centers, constructing a "space + service + technology" tripartite support platform. In terms of spatial design, libraries should create multifunctional learning areas such as maker spaces, virtual simulation laboratories, and interdisciplinary seminar rooms, equipped with innovative tools like 3D printers and VR devices to provide practical platforms for students. Simultaneously, libraries should implement a subject librarian system, assigning librarians with industry backgrounds

to each major to provide in-depth services including personalized resource recommendations and research methodology guidance. Additionally, by organizing innovation workshops, academic salons, entrepreneurship competitions, and other activities, libraries can promote intellectual collision and cooperation among faculty, students, and enterprises, guiding students to apply professional knowledge to solve practical problems.

### 3.3 Enhancing Information Literacy Education to Cultivate Students' Innovative Thinking and Practical Abilities

Libraries should construct a three-tiered "foundation-advanced-innovation" information literacy education system to comprehensively enhance students' abilities in information acquisition, analysis, and application. The foundation tier offers general courses on information retrieval and literature management to help students master basic tool usage. The advanced tier provides specialized training on industry database applications and data analysis techniques tailored to professional needs, such as customized medical literature retrieval courses for nursing students. The innovation tier employs project-driven teaching, guiding students to participate in real research projects to cultivate critical thinking and innovation abilities. Simultaneously, libraries must strengthen digital resource integration and utilization, developing "information literacy + professional innovation" online courses. By establishing an information literacy evaluation mechanism and incorporating information capabilities into students' comprehensive evaluation systems, libraries can motivate students to proactively enhance their literacy. Additionally, organizing information literacy competitions, case analysis contests, and other activities promotes the transformation of learned knowledge into practical innovation abilities, forming a virtuous cycle of "learning-application-innovation."

### 3.4 Strengthening Deep Integration Between Libraries and Institutional Curriculum Systems

Libraries should establish a "library-faculty-teacher" collaborative mechanism that deeply integrates library resources with course teaching and practical components. Librarians should participate in professional curriculum design, providing supporting resource lists according to syllabi—for example, embedding relevant patent literature and technical standards in IoT technology courses. Simultaneously, libraries should promote an embedded teaching model where librarians enter classrooms to demonstrate database retrieval techniques, data analysis methods, and other skills on-site, helping students master innovation tools during coursework. Furthermore, libraries should support project-based learning grounded in library resources, requiring students to utilize industry reports, policy documents, and other materials to complete research and proposal development. By establishing a dynamic curriculum resource update mechanism, libraries can ensure that teaching content and library resources are synchronized and iteratively updated.

### 3.5 Establishing Cooperative Networks with Enterprises and Research Institutions

Libraries should establish diverse cooperative networks including school-enterprise collaboration, inter-institutional alliances, and international partnerships to provide students with broad innovation practice platforms. By jointly building industrial innovation resource repositories with enterprises, libraries can introduce corporate technical documents, production cases, job standards, and other resources while simultaneously opening academic library resources to enterprises for mutual benefit. For example, collaborating with intelligent manufacturing companies to develop virtual simulation training systems for smart factories provides students with practical operation opportunities. Additionally, joining regional higher vocational college library alliances allows sharing of distinctive resources and service experiences, promoting inter-institutional innovation project cooperation. Libraries should actively conduct international exchanges, establishing resource-sharing agreements with foreign vocational college libraries to introduce internationally certified industry course resources and broaden students' global perspectives. Regularly organizing school-enterprise innovation forums and international academic seminars that invite industry experts, researchers, and faculty-student groups to discuss cutting-edge technological issues. Through these collaborations, libraries can not only provide students with rich off-campus resources but also promote deep integration of industry, academia, and research, enhancing the quality of innovative talent cultivation.

### 3.6 Strengthening Library Space Innovation to Build an Intelligent Learning Ecosystem

Higher vocational college libraries need to break away from traditional spatial patterns and construct immersive, intelligent learning ecosystems through "space reconstruction + technology empowerment." Libraries should design specialized functional areas according to different disciplinary needs—for example, establishing digital media studios equipped with graphics workstations and virtual reality devices for art and design majors, and building intelligent laboratories for engineering majors to support prototype development and technology verification. By introducing IoT and artificial intelligence technologies, libraries can achieve intelligent management and dynamic allocation of spatial resources. Constructing a "online + offline" integrated virtual space and developing a metaverse-based digital twin library provides services such as 3D resource navigation and virtual academic conferences, breaking through physical space limitations. Through spatial innovation, libraries can not only meet students' personalized learning needs but also stimulate interdisciplinary collaboration and innovative inspiration, becoming the birthplace of campus innovation culture.

## 4. Conclusion

Higher vocational colleges must further recognize the strategic role of libraries in cultivating innovative talents, strengthen library resource construction and service model innovation, and promote the modernization of the education system. Libraries should also build a dynamic, interdisciplinary resource system to provide students with timely and comprehensive academic support, particularly by strengthening the connection with industrial needs to ensure resource updates keep pace with technological advancement. They should promote the comprehensive development of information literacy education, cultivating students' critical thinking and digital capabilities to establish a solid foundation for them to meet future innovation challenges.

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*Note: Figure translations are in progress. See original paper for figures.*