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Research on Innovation and Entrepreneurship Education in Applied Universities from the Perspective of Integration of Industry and Education

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Abstract: With the profound transformation of the global economy, innovation and entrepreneurship have become the core forces driving social progress. In this context, education, especially higher education, plays a crucial role. Applied universities, as the forefront of education reform in the new era, have gradually become an important bridge connecting academia and industry, as well as theory and practice. By meticulously examining the prevailing educational frameworks, collaborative systems, and their outcomes, this piece highlights the prospects and significance the fusion of industry and academia offers to application-oriented institutions. Building on this, the article probes into potential hurdles these universities might face in their integration journey, including the divergent aims and cultural nuances between educational and industrial sectors, resource optimization, and maintaining the calibre of innovation and entrepreneurship education. We put forth a slew of tactics and recommendations, geared towards enabling applied institutions to more proficiently champion innovation and entrepreneurship education amid this merging landscape, and to mold individuals endowed with adept practical skills and an innovative mindset. Summarily, this blend of industry and academia has ushered in new growth avenues while simultaneously presenting fresh challenges for application-driven universities in China.

1. Introduction

In today's changing global economic structure, innovation and entrepreneurship are regarded as the key driving forces to promote social development and enhance national competitiveness, and education, as the main place to train innovative and entrepreneurial talents, is self-evident. In the context of China's evolving education reforms, application-focused institutions are emerging as pivotal hubs for nurturing talent[1]. These establishments are distinguished not just by their blend of theoretical and practical learning, but also by their strong collaborations with industries and businesses. This ensures the development of students with enhanced practical skills and a flair for innovation[2]. At the heart of this contemporary education shift is the concept of education-industry integration, signifying a profound synergy between educational institutions and the business sector. This combination is not only a simple resource sharing or project cooperation, but also a deep, two-

way and continuous cooperative relationship[3]. Amidst this backdrop, the question arises: how can application-focused institutions optimally implement innovation and entrepreneurship education? This question has piqued the interest of both the education sector and industry. Recognizing the importance of innovation and entrepreneurship education, the government has rolled out a series of policy initiatives over recent years, encouraging universities to collaborate with businesses and research entities to establish a robust education system centered on innovation and entrepreneurship[4]. Application-centric institutions, given their distinct academic frameworks, pedagogical approaches, and talent development goals, are progressively becoming significant venues for actualizing the melding of academia and industry. Furthermore, these institutions are ceaselessly venturing into novel and effective teaching techniques[5]. For example, adopting new teaching modes such as project-oriented learning, practice base and incubator construction, and entrepreneur tutor system aims to provide students with a more real and comprehensive learning environment for innovation and entrepreneurship. However, how to ensure the quality and effect of innovation and entrepreneurship education under the background of integration of production and education is an urgent problem to be studied[6]. While education and industry have diverging objectives, operational mechanisms, and cultures, achieving a genuine convergence remains a complex task. Additionally, as we delve deeper into innovation and entrepreneurship education, circumventing mere "tokenism" and ensuring meaningful, lasting impact is crucial to the ongoing education reforms[7]. With these considerations in mind, this study seeks to delve into the nuances of innovation and entrepreneurship education at application-focused institutions through the lens of education-industry integration. Our goal is to comprehensively assess the present landscape, pinpoint challenges, and shed light on success stories and lessons learned. We aspire to furnish valuable insights and recommendations for the evolution of innovation and entrepreneurship education at such Chinese institutions[8]. Broadly, intertwining academia and industry has ushered in fresh opportunities and hurdles for applied universities. It has also charted a new course for innovation and entrepreneurship education. Authentic integration between the two realms is pivotal to effectively molding talents who not only fulfill societal demands but also embody innovation and hands-on expertise[9].

2. Analysis of the current situation of industry education integration

2.1. The cooperation model between applied universities and the industry

With the need for economic development and the advancement of technological innovation, the cooperation between applied universities and the industry is becoming increasingly in-depth. This cooperation is not limited to traditional internships and practical training, but more revolves around models such as industry university research projects, technology transfer, and co construction of research institutes (Figure 1).

Many application-oriented universities and enterprises jointly apply for research projects and carry out research to achieve the goal of resource sharing and complementary advantages. This cooperation can ensure that the research direction is closely aligned with the needs of industrial development and improve the practical value of research[10]. Technology transfer and intellectual property cooperation. The technology produced by applied universities in the scientific research process is transferred through cooperation with enterprises, enabling it to be quickly transformed into actual productivity. At the same time, cooperation and exchange on intellectual property rights have also brought win-win opportunities for both parties. The joint construction of research institutes and innovation centers is jointly funded and managed by enterprises and universities, establishing cooperative research institutes or innovation centers, forming a new model that integrates research and development, training, and achievement transformation.

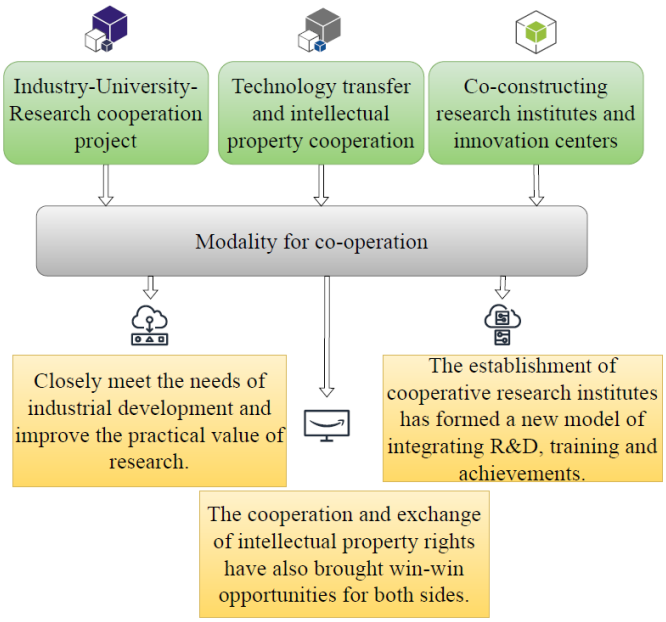

Figure 1: Cooperation Mode

2.2. The Current Situation of Students' Innovation and Entrepreneurship Ability

With the promotion of the integration of production and education, students' innovation and entrepreneurship ability is gradually improving, but there are still some problems that need attention. With the popularization of innovation and entrepreneurship education, most students have a certain sense of innovation, but how to turn it into practical innovation behavior is still a challenge. Application-oriented colleges and universities provide students with abundant practical opportunities, such as enterprise internships and innovative projects, but there are still shortcomings in terms of resource allocation and guidance. Although more and more students choose to start a business, the entrepreneurial environment and atmosphere in colleges and universities still need to be further optimized to meet the actual needs of students.

2.3. Interaction and cooperation between schools, enterprises and government

Within the framework of education-industry integration, educational institutions, businesses, and the government are all pivotal players. Their collaborative efforts and synergies are crucial for fostering this integration. The government, in its capacity, has rolled out various supportive measures, including tax breaks and project funding, to champion this cause. Such initiatives create a conducive external setting for a seamless melding of academia and industry. With the support of the government, schools and enterprises jointly carry out project cooperation and joint training, forming an integrated training mode in Industry-University-Research. A variety of information exchange and sharing mechanisms have been established among schools, enterprises and the government, such as Industry-University-Research Cooperation Forum and technical exchange meeting, which have improved the information transparency and cooperation efficiency among all parties.

3. Innovation and entrepreneurship education mode under the integration of production and education

3.1. Project-oriented learning model

PBL(Project-Based Learning) is a teaching model which takes the project as the core and revolves around the process of solving real problems. It encourages students to study actively, work in teams, practice and think creatively. This paper analyzes the learning characteristics of PBL, and the details are shown in Figure 2.

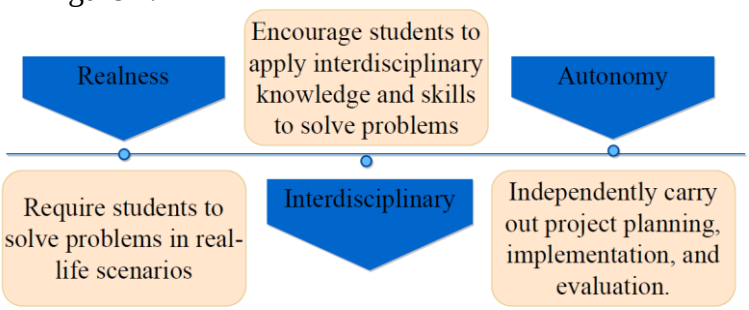

Figure 2: Learning characteristics of PBL

Focusing on practical problems, students are required to solve real-world problems, and are encouraged to apply interdisciplinary knowledge and skills to solve problems. Students need to independently plan, implement, and evaluate projects. The specific implementation method is to clarify the project theme and objectives, ensuring that they match the course objectives and student needs. Design project tasks, including research issues, resource preparation, team division, etc. Evaluate and provide feedback on students' project processes and outcomes. As the core concept of education reform in the new era, it refers to the deep integration and interaction between education and industry, as well as between schools and enterprises. This combination is not only about simple resource sharing or project cooperation, but also a deep, two-way, and continuous cooperative relationship. In this context, how to better carry out innovation and entrepreneurship education in applied universities has become a common concern in the current education and industry sectors. Firstly, applied universities focus on cultivating students' application and practical abilities, which is highly in line with the demand for talent in modern enterprises. Under the framework of industry education integration, enterprises can directly participate in the school's curriculum design, practical teaching, scientific research projects, and other links, achieving true "demand docking and resource sharing". Secondly, application-oriented universities have strong regional and industry characteristics, and can closely cooperate with local enterprises and industries. This cooperation is not only conducive to the optimal allocation of university resources, but also provides strong talent and technical support for local economic development.

3.2. Entrepreneurial mentor system

The entrepreneur mentor system is a system where experienced entrepreneurs or industry experts serve as mentors for students, providing them with practical industry experience, business knowledge, and network resources. The role of a mentor is to provide industry insights and business strategy advice to students, help them establish career plans and development paths, and connect them with resources and opportunities within the industry. The specific implementation strategy is to establish an entrepreneur database and regularly organize communication activities. Pair students and mentors to establish long-term coaching relationships. Regularly evaluate and adjust the implementation effect of the mentor system.

3.3. Construction of practical bases and incubators

A practice base is a place for students to practice, research, and innovate, while incubators tend to provide resources and services for startups to help them grow rapidly. The main function of the practice base is to provide students with technical, experimental, and research resources. Organize various skill training and practical activities. Collaborate with the industry to provide students with real project opportunities. The role of incubators is to provide the infrastructure required by startups, such as office space, laboratories, etc. Provide funding, technology, market and other resources for docking. Organize training, consulting, and coaching services to help startups solve their growing problems.

3.4. Reform of curriculum system and teaching methods

Blending academia and industry demands a tight-knit union between educational practices and industrial needs, necessitating significant shifts in curricular structures and pedagogical approaches. To align more closely with industry requisites, application-centric institutions have undertaken pertinent transformations and innovative measures in their curriculum and teaching methodologies. This includes close connection with industrial technology and professional standards, strengthening the setting of practical courses, and adopting modern teaching methods such as blended learning and reverse classroom. Adjust the curriculum system, strengthen the connection with industrial technology and professional standards, and ensure the cutting-edge and practicality of the curriculum content. Application-focused institutions prioritize enhancing students' practical and applicative skills, aligning closely with contemporary corporate talent needs. Within the education-industry integration context, businesses can have a hands-on role in academic facets like curriculum formulation, hands-on instruction, and research endeavors, truly bridging needs with resources. These institutions are consistently seeking new and improved pedagogical strategies. They're amplifying hands-on components like lab work, hands-on training, and project-based learning to bolster students' practical prowess. Modern instructional strategies, such as blended learning and flipped classrooms, are being employed to elevate educational outcomes. Emphasizing the confluence of instruction, research, hands-on experiences, and inventive approaches is crucial for holistically nurturing students' capabilities.

4. Conclusions

The integration of PBL industry and education has gradually become an important direction of higher education reform in China, especially in applied universities. Conduct in-depth research on the application of industry education integration in innovation and entrepreneurship education in applied universities. Modern application-oriented universities are no longer satisfied with traditional internship and training cooperation models, but are developing towards deep cooperation such as industry university research project cooperation, technology transfer and intellectual property cooperation, as well as co construction of research institutes and innovation centers. This deepening cooperation model helps to connect schools and industries more closely, providing students with a more authentic environment for innovation and entrepreneurship. In the context of the integration of industry and education, students not only need to have a basic sense of innovation, but also the ability to transform it into practical innovative behavior. This requires the joint efforts of schools, enterprises, and the government to provide rich practical opportunities, resource support, and optimized entrepreneurial environment and atmosphere. Driven by the integration of industry and education, applied universities are gradually exploring various effective innovation and entrepreneurship education models, such as project-based learning, entrepreneur mentor system,

practice base and incubator construction, etc. These models not only help students accumulate practical experience, but also stimulate their innovation passion and entrepreneurial determination. In essence, the amalgamation of academia and industry has introduced fresh prospects and obstacles for innovation and entrepreneurship instruction in application-centric institutions. For optimizing its benefits, sustained endeavors, enhanced collaboration, and collective commitment are imperative to advance the superior progression of innovation and entrepreneurship education.

References

[1] Xuechun W. Research on the Integration of Computer Application Courses and Innovation and Entrepreneurship Education in Universities [J]. Pioneering with Science & Technology Monthly, 2018, 19(4):11-15.

[2] Jianqiang Wu, Amp G. On the integration of innovation and entrepreneurship education and course teaching in colleges and universities [J]. Journal of Zhenjiang College, 2019, 20(11):18-24.

[3] Yanping Z. Study of Integration Route of Innovation and Entrepreneurship Education and Major Education in Local Undergraduate Universities [J]. Journal of Jinggangshan University (Social Sciences), 2019, 20(13):16-21.

[4] Xijian C, Jianmei L, Yingjun C. A Case Study of Innovation and Entrepreneurship Education in Applied Universities from the Perspective of Supply-side Reform [J]. Application-Oriented Higher Education Research, 2018, 23(8):11-14.

[5] Ming L, Sheng L, Yuan D. Exploration and Practice of Innovation and Entrepreneurship Education in Applied Undergraduate Universities—Taking Guangxi University of Finance and Economics as an example[J]. The Guide of Science & Education, 2020, 12(2):11-17.

[6] Bengang B, Zhikai C, Juan T, et al. Research on the Ways of Innovation and Entrepreneurship Education in Application-oriented Local Universities [J]. Journal of Hunan First Normal University, 2019, 36(10):15-20.

[7] Siming W. Research on Production-Teaching Integration of Innovation and Entrepreneurship Education in Sport College under the Background of "Internet + "[J]. Journal of Guangzhou Sport University, 2019, 24(11):21-24.

[8] Zhijing Z. Constructing the Evaluation System of Innovation and Entrepreneurship Education in Colleges and Universities Based on Industry-Education Integration [J]. Journal of Guangdong Polytechnic Normal University, 2019, 19(3):18-22.

[9] Wen X, Changping Z. Analysis of the Integration Mechanism of Innovation and Entrepreneurship Education and Professional Practice Education in Applied Universities [J]. The Theory and Practice of Innovation and Entrepreneurship, 2018, 9(3):7-11.

[10] Xiangrong K, Xiaolan L. Research on the Construction of Talent Cultivation System of Innovation and Entrepreneurship Education in Private Colleges and Universities based on the Integration of Industry and Education[J]. Pioneering with Science & Technology Monthly, 2019, 13(4):10-16.