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Research on "Dual Platform and Dual System" Innovation and Entrepreneurship Talent Training Model from the Perspective of Embodied Cognition

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Abstract: With the support of national policies, it has become an important task for the reform and development of higher education to cultivate dual-innovation talents that meet the development needs of the times. Based on the application of embodied cognitive theory in the cultivation of innovative and entrepreneurial talents, this paper deeply discusses the connotation, construction elements, implementation path and strategy of the "dual platform and dual system" training mode. By constructing a "double platform and double system" innovation and entrepreneurship talent training mode, it aims to cultivate "double innovation" talents with innovative consciousness and practical ability, and provide theoretical support and practical reference for the reform of innovation and entrepreneurship education in colleges and universities.

1. Introduction

In 2018, it was mentioned in the Opinions of the State Council on Promoting the High-quality Development of Innovation and Entrepreneurship to Create an Upgraded Version of "Double Entrepreneurship": "Innovation is the first driving force for development. In recent years, China's economy has entered a high-quality development stage. With the vigorous development of mass entrepreneurship and innovation and the continuous improvement of the innovation and entrepreneurship environment, colleges and universities should also promote the deep integration of scientific and technological innovation and entrepreneurship." [1]. "China Education Modernization 2023" also proposes to strengthen the construction of innovation systems in colleges and universities and increase the cultivation of innovative talents, especially top-notch innovative talents [2]. Under this background and situation, innovation and entrepreneurship have become the key driving force to promote economic development and social progress. Therefore, the improvement of college students' innovation and entrepreneurship ability is one of the main goals of talent cultivation in colleges and universities, especially in local applied universities and newly-built universities. The main measures and reform direction of teaching reform should be to cultivate students' innovation and entrepreneurship ability, and at the same time strengthen the cultivation of students' practical ability.

In today's era of globalization, higher education, as an important position of talent cultivation, undertakes the mission of cultivating high-quality talents with innovative consciousness, entrepreneurial ability and social responsibility. Innovation and entrepreneurship education in colleges and universities is often out of touch with the demand of the market and industry, and the curriculum and teaching content can't reflect the latest trends of the industry and the actual needs of enterprises in time. There is a big gap between the skills acquired by graduates in schools and the actual needs of enterprises, which makes it difficult to meet the demand of society and enterprises for innovative and entrepreneurial talents, resulting in the lack of innovative and entrepreneurial talents becoming one of the bottlenecks restricting social development and innovation. There are many problems in the existing innovation and entrepreneurship education mode, which pays too much attention to the imparting of theoretical knowledge, regards cognition only as the operation and processing of abstract symbols, and ignores students' practical experience and physical perception. The educational method of "self-cognition" makes it difficult for students to turn what they have learned into practical innovative achievements and entrepreneurial actions. Embodied cognitive theory emphasizes the important position of the interaction between body, environment and cognition in the cognitive process, which can provide new perspectives and ideas for the development of innovation and entrepreneurship education.

Based on the embodied cognitive theory and combined with the current situation of innovation and entrepreneurship, this paper puts forward a "dual platform and dual system" innovation and entrepreneurship talent training mode, in order to break through the limitations of traditional education mode and improve the quality and effect of innovation and entrepreneurship education. Through the research of this model, it is helpful to enrich the theory of innovation and entrepreneurship education, provide useful reference for colleges and universities to cultivate innovative and entrepreneurial talents who meet the needs of the times, and at the same time, it is helpful to promote the in-depth development of education and teaching reform in colleges and universities, promote the close combination of education and industry, and enhance the country's innovation competitiveness.

2. The Necessity of Integrating Innovative and Entrepreneurial Talent Training Model into Embodied Cognitive Theory

The theory of embodied cognition emphasizes that mind, body and environment constitute a unified organism, and the experience of the body in the environment is a necessary condition for cognition [3]. The introduction of embodied cognitive theory promotes the integration of the concept of all-round education for all employees into the whole process of improving college students' innovation and entrepreneurship ability. As a new educational concept, embodied cognitive theory pays attention to the interaction between subject and object in the educational process, advocates that educators should improve talent training conditions, optimize teaching methods, encourage students to explore and practice in real situations, so as to promote students' meaningful learning and stimulate individual creativity, and provide new ideas for the reform and development of innovation and entrepreneurship education.

2.1. The significance of physical experience to innovation and entrepreneurship education

The theory of embodied cognition holds that the experience and perception of the body are the basis of cognition, and the sensory intuition of the body and the actual experience in the environment all play an important role in the occurrence and development of cognition [4]. This kind of experience based on the direct participation of the body is intuitive and profound, which is different from books, and makes students form a deeper and more comprehensive understanding of entrepreneurship. In

innovation and entrepreneurship education, students can gain rich physical experiences by letting students know from the course that they can personally participate in entrepreneurial practice activities, such as market research, product design, enterprise operation, etc., which will help students to have a deeper understanding of various problems and challenges in the entrepreneurial process, thus forming a deeper cognition and improving the final learning effect. Learning in a real environment can also help students understand the multifaceted nature of complex problems, developing students' critical thinking and problem-solving skills, and enabling them to respond flexibly to challenges amid dynamics and uncertainty.

2.2. The interaction between environment and body stimulates innovative and entrepreneurial thinking

Embodied cognitive theory emphasizes the dynamic interaction between the body and the environment [5]. Embodied cognitive theory encourages different thinking modes to be stimulated through physical activity and environmental interaction. In innovation and entrepreneurship education, creating a good innovation and entrepreneurship environment is of great help to break the conventional thinking, and at the same time stimulates students' creativity and innovative thinking. For example, practice places such as Shuangchuang Incubation Base and Zhongchuang Space will be built to provide students with a space similar to the real entrepreneurial environment. In such an environment, students interact with various resources and personnel, so as to be constantly inspired, inspire innovation and cultivate entrepreneurial ability. At the same time, by organizing entrepreneurial competitions, entrepreneurial lectures and other activities, it also creates a diversified interactive environment for students, stimulates the development of students' innovative and entrepreneurial thinking in an all-round and multi-level way, and also lays a solid foundation for cultivating innovative and entrepreneurial talents who can promote national innovation-driven development.

2.3. Embodied cognition promotes students' innovation and entrepreneurship practice ability

Innovation and entrepreneurship education under the guidance of embodied cognitive theory pays attention to practical teaching, which shows that knowledge not only exists in books and classrooms, but also is deeply buried in individual physical experience and action practice in actual situations. Therefore, innovation and entrepreneurship education under the guidance of embodied cognitive theory can effectively cultivate students' innovation and entrepreneurship practice ability by building a rich practice platform, so that students can learn and grow in actual operation. In the process of participating in entrepreneurial projects, students need to use what they have learned to solve practical problems, which deepens their understanding and mastery of knowledge and improves their problem solving ability, teamwork ability and innovation ability. For example, in the process of implementing entrepreneurial projects, students need to set up teams, formulate business plans, carry out marketing, etc. Providing such a practical platform for students will also effectively promote the development and progress of dual-innovation education.

3. Analysis of the Connotation of "Dual Platforms and Dual Systems" Model

The theory of embodied cognition emphasizes the key role of the interaction between body and environment in cognition [6], which is highly consistent with the construction concept of dual platforms and dual systems. Through contextualized teaching, the Science and Technology Innovation Platform creates real innovative practice scenarios, allowing students to deeply understand the application of scientific and technological knowledge in actual experience. Industry-University-

Research's collaborative incubation platform provides students with the opportunity to interact deeply with the real industrial environment and realize the embodied absorption and application of knowledge. The all-round stepped dual-innovation education curriculum system follows the law of embodied cognition, gradually guiding students from basic perception to in-depth practice. In the continuous interaction between students' body and environment, they constantly deepen their cognition of innovation and entrepreneurship, improve their comprehensive literacy, grow into innovative talents that meet the needs of the times, vigorously promote the transformation of scientific research achievements into real productive forces, and inject innovative vitality into social and economic development. The "dual platform and dual system" innovative and entrepreneurial talent training mode from the perspective of embodied cognition is shown in Figure 1.

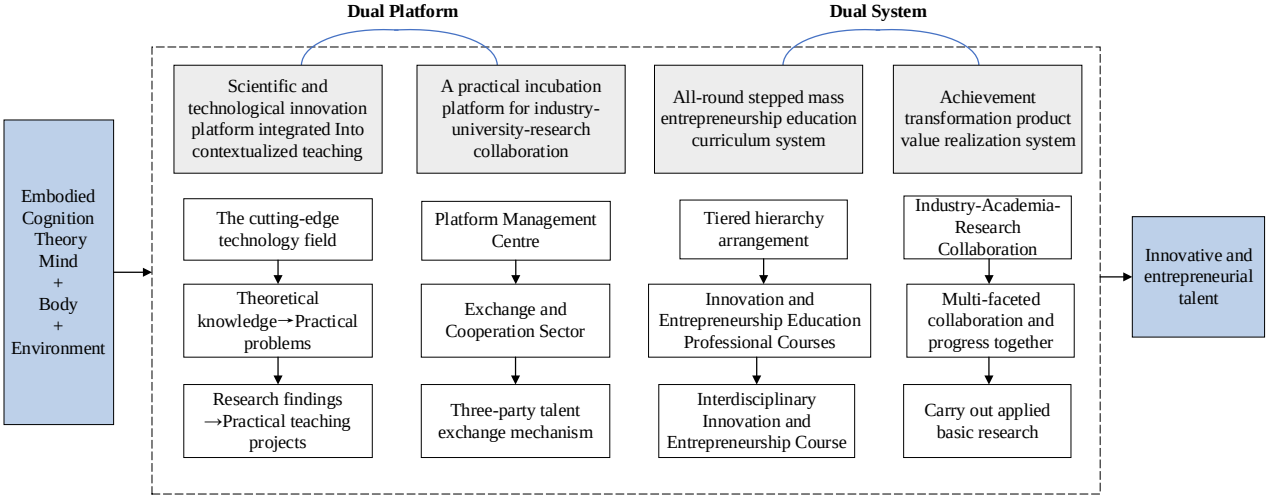

Figure 1 "Dual Platform and Dual System" Innovation and Entrepreneurship Talent Training Model from the Perspective of Embodied Cognition

3.1. Scientific and technological innovation platform integrated into contextualized teaching

In order to meet the needs of industrial and regional development and help educators carry out scientific and technological innovation, the scientific and technological innovation platform is of great significance as an effective innovation carrier to promote the high-quality development of schools. There are certain differences between the talent training mode and the science and technology innovation platform in goal setting and educational concept. Therefore, colleges and universities need to encourage teachers and students to innovate collaboratively by improving the integration of the two. In the process of innovation practice, colleges and universities should be good at discovering talents, carefully cultivating talents, expanding students' thinking boundaries, and enhancing their practical innovation skills, so as to give full play to the important role of science and technology platform in educating people, and cultivate double-innovation talents for colleges and universities to meet the needs of the times.

First of all, the science and technology platform provides innovative and practical opportunities for talent cultivation. The science and technology platform gathers cutting-edge resources. During the research process, teachers and students can not only get in touch with cutting-edge scientific and technological achievements and gain insight into industry trends, but also promote the blending of interdisciplinary knowledge and technology, thus accumulating rich practical experience, so that theoretical knowledge can be applied to solving practical problems, and students' entrepreneurial literacy and ability can be improved through their participation in entrepreneurial practice. Secondly, transforming the research results of the science and technology innovation platform into actual

teaching projects is an efficient way to cultivate innovative talents. The transformed projects provide students with a teaching environment that is highly consistent with the actual situation of innovation and entrepreneurship, and skillfully integrate abstract theoretical knowledge into specific science and technology innovation practice. Students can quickly get in touch with the scientific research achievements and technical skills at the forefront of the industry, continue to exercise their innovative thinking and practical ability, and finally grow into innovative talents needed by society.

3.2. A practical incubation platform for industry-university-research collaboration

Science and technology innovation has become the core driving force to promote social and economic development. As an important position for knowledge innovation and talent cultivation, colleges and universities build an incubation platform for Industry-University-Research, which is an inevitable choice to realize the transformation of scientific research achievements, the improvement of talent cultivation quality and the rapid development of local economy. The construction of this platform helps to break down the barriers between universities, enterprises and scientific research institutions, and promote the efficient flow and in-depth integration of innovative elements such as knowledge, technology and talents.

In order to solve all kinds of difficulties that entrepreneurs may encounter in the process of starting a business, colleges and universities should set up an independent management center of collaborative incubation platform in Industry-University-Research, which is responsible for the overall planning, daily operation, project docking and coordination of the platform. At the same time, it is equipped with professional management personnel, which can effectively deal with various problems in the operation of the platform. Add an exchange and cooperation section in the platform, where entrepreneurs can exchange and interact, share experiences and collide thinking, so as to increase entrepreneurs' entrepreneurial opportunities and achieve win-win cooperation. Colleges and universities should establish a talent exchange mechanism with enterprises and scientific research institutions, select teachers to exercise in enterprises to participate in the research and development and management of actual projects of enterprises, understand industry needs and technological development trends, and improve teachers' practical teaching ability; In addition, technical backbones and scientific research experts of enterprises are invited to give lectures in colleges and universities to bring new industry trends and practical experience into the campus. In addition, actively strive for government financial support for platform infrastructure construction and incubation of major scientific research projects. Colleges and universities should constantly improve the platform construction, give full play to the main role of innovation, accelerate the transformation of scientific and technological achievements, and inject strong impetus into high-quality economic and social development.

3.3. All-round stepped mass entrepreneurship education curriculum system

Under the background of "mass entrepreneurship and innovation", colleges and universities must build a scientific and effective double-innovation education curriculum system, and the all-round ladder double-innovation education curriculum system aims to provide students with systematic and hierarchical innovation and entrepreneurship education from multiple dimensions and at different stages, and comprehensively improve students' innovative thinking, entrepreneurial ability and comprehensive quality.

The hierarchical setting of the curriculum system is divided into basic popularization layer, skill upgrading layer and actual combat exercise layer according to different objects. Starting from stimulating students' innovative consciousness and entrepreneurial interest, students can transform innovative ideas into concrete prototypes of innovative projects through professional skills training.

Finally, it provides a practical platform for students who are preparing to carry out actual entrepreneurial projects or participate in high-level innovation and entrepreneurial competitions, and exercises students' ability to solve practical problems in simulated actual combat scenarios. Deeply integrate mass entrepreneurship and innovation education with professional courses in various disciplines, integrate innovative and entrepreneurial cases and thinking into professional course teaching, and build a bridge from theoretical knowledge to practical application for students; To break down disciplinary barriers and integrate interdisciplinary knowledge, interdisciplinary double-innovation curriculum modules can be set up to expose students to multiple knowledge systems, so that students can form the habit of active inquiry and learning, integrate knowledge and skills in different fields, and cultivate their ability to comprehensively use knowledge to solve practical complex production problems.

3.4. Achievement transformation product value realization system

Under the background of the new era, a large number of scientific research achievements need to be transformed into products with market value. Transformation products carry the crystallization of scientific research and innovation, and shoulder the important task of meeting market demand and promoting industrial development. Achievement transformation products usually rely on cutting-edge scientific research results and have unique technological advantages. This innovation will give products differentiated competitiveness in the market. Universities and scientific research institutions have cutting-edge technology and scientific research personnel, and enterprises have manufacturing and market operation capabilities. Therefore, strengthening Industry-University-Research cooperation can accelerate the transformation process of scientific research achievements. As a complex systematic project, the construction of the value realization system of achievement transformation products needs to be promoted coordinately from market research, R&D and production, value evaluation and other links. Universities, scientific research institutions and enterprises can carry out applied basic research around market demand, establish an effective bridge between them, realize information sharing, gradually build a technology transfer and transformation network, transform scientific and technological achievements into realistic driving force to promote economic and social development, and promote the benign interaction between scientific and technological innovation and economic development.

4. Construction Elements of "Double Platform and Double System" Innovation and Entrepreneurship Talent Training Model

4.1. Objective concept innovation

Under the background that the country vigorously builds an innovative country and adheres to mass entrepreneurship and innovation, innovation and entrepreneurship education has become an important factor to promote the innovation of education mode. Therefore, colleges and universities should abandon the traditional single goal of knowledge imparting and skills training, and establish the goal concept with cultivating students' innovative thinking, entrepreneurial ability and social responsibility as the core. Through the implementation of innovation and entrepreneurship education, students' dominant position is emphasized, individualized development is emphasized, and students are encouraged to dare to break through the routine and pursue innovation. Colleges and universities should integrate innovation and entrepreneurship education into the whole process of talent cultivation, from "emphasizing theory over practice" to "paying equal attention to theory and practice", so as to create a good atmosphere for all employees to participate in innovation and entrepreneurship, and meet the objective requirements of the society for colleges and universities to

cultivate high-quality talents.

4.2. Optimization of curriculum system

Construct an all-round stepped double-innovation education curriculum system that organically combines theoretical teaching with practical teaching. In terms of theoretical courses, compulsory courses such as innovation and entrepreneurship foundation, innovative thinking training and entrepreneurship management, as well as elective courses such as technology and finance and business model innovation, are offered to form a systematic knowledge structure, build a solid knowledge foundation for students, break students' mindset and cultivate their divergent and creative thinking. The course pays attention to actual combat, and sets up entrepreneurial simulation training, enterprise internship, entrepreneurial project practice and other links. At the same time, innovation and entrepreneurship education will be deeply integrated with professional education, innovation and entrepreneurship cases and thinking will be integrated into professional courses, and interdisciplinary knowledge will be integrated. Theoretical guidance will be strengthened in practical courses, students will be guided to summarize and reflect on the practical process, theoretical literacy will be improved, and positive interaction between practice and theory will be realized.

4.3. Perfect incentive mechanism

Establishing a perfect and efficient incentive mechanism can fully stimulate the enthusiasm and enthusiasm of students and teachers to participate in innovation and entrepreneurship education. Set up special innovation and entrepreneurship scholarships for students, and reward students who perform well in innovation and entrepreneurship competitions, project practices and other activities; Colleges and universities also implement a flexible credit management system, which makes reasonable credit exchange for students' participation in innovation and entrepreneurship practice activities and achievements, and encourages students to invest more time and energy in innovation and entrepreneurship. For teachers, schools can incorporate the teaching achievements of innovation and entrepreneurship education into the performance appraisal system, or give bonus incentives to encourage teachers to actively participate in the teaching of innovation and entrepreneurship courses, constantly optimize the teaching content and improve the teaching quality.

4.4. Teaching Staff Construction

School should strengthen the construction of teachers' morality and style, standardize teachers' behavior, build a full-time and part-time teaching staff, implement the "double-qualified" teaching team cultivation project, and comprehensively improve the quality of double-qualified teachers. Schools should establish the standard of "double-qualified" teachers, select full-time teachers with professional background and practical experience in innovation and entrepreneurship, and part-time teachers such as business executives, successful entrepreneurs and venture capital experts, and build a "double-qualified and dual-ability" mixed teacher team. Based on the principle of "practicality and creativity", the school should fully mobilize the enthusiasm of teachers and students, and provide students with comprehensive theoretical guidance and practical experience sharing.

5. Implementation Path and Strategy of "Dual Platform and Dual System" Innovation and Entrepreneurship Talent Training Model

5.1. Contextualized learning experience

Using the virtual simulation technology of the scientific and technological innovation platform to simulate various entrepreneurial scenarios, students experience all aspects of entrepreneurship in the simulated e-commerce operation environment, feel the challenges of e-commerce operation immersively, and deepen their understanding of the innovation and entrepreneurship process. With the help of Industry-University-Research's collaborative incubation platform, real projects of enterprises are introduced, and students participate in the research and development of new products, market research and other projects of enterprises, and work closely with enterprise teams to improve their ability to solve practical problems.

5.2. Reflective practical teaching

After students participate in the platform practice project, relying on the practice courses in the all-round ladder double-innovation education curriculum system, teachers will guide students to conduct reflective learning. For example, after the practice of entrepreneurial projects, teachers encourage students to reflect and summarize the problems, decisions and results in the practice process, share experiences and lessons by writing practice reports and conducting group discussions, and internalize practical experience into knowledge and ability. School should organize students to reflect and evaluate the product achievements in the value realization system of achievement transformation products. Starting from the aspects of product market performance and user feedback, students think about the advantages and disadvantages of products in function, design, marketing and other aspects.

5.3. Interdisciplinary integration practice

Based on the project needs of the scientific and technological innovation platform and the actual incubation platform, break the disciplinary boundaries and set up an interdisciplinary team. For example, in the intelligent medical equipment research and development project, students from medicine, electronic engineering, computer science, industrial design and other disciplines are gathered. Medical students provide clinical needs and application scenarios. Electronic engineering and computer science students are responsible for hardware and software research and development.And industrial design students optimize equipment appearance and user experience, and cultivate students' interdisciplinary collaboration and innovation ability. School should integrate interdisciplinary curriculum resources in the all-round ladder dual-innovation education curriculum system, and carry out integrated practice.

5.4. Dynamic evaluation and feedback

Taking students' practical performance on dual platforms and learning achievements in dual systems as the core, multiple evaluation indicators are constructed. The evaluation should break through the traditional limitations, and include the examination results, project completion quality, practical operation assessment, innovation achievements, teamwork ability and other aspects into the assessment scope. According to the evaluation results, school should give timely feedback to students and teachers, point out their advantages and disadvantages in the process of innovation and entrepreneurship, and provide suggestions for improvement. School should provide feedback to

teachers on the effectiveness of teaching, so that they can adjust the teaching contents and methods in time. At the same time, we regularly collect feedback from students and teachers on curriculum and practice links, and adjust and optimize the training mode by integrating and analyzing opinions, so that it always meets students' needs and educational development trends.

6. Conclusions

The "dual platform and dual system" innovative and entrepreneurial talent training mode from the perspective of embodied cognition is an innovative practice that meets the development needs of the times and the laws of education and teaching. By building a scientific and technological innovation platform integrated into situational teaching and a practical incubation platform for Industry-University-Research collaboration, building an all-round ladder-stepped dual-innovation education curriculum system and an achievement-transformation product value realization system, and adopting effective implementation paths and strategies, we can cultivate more innovative and entrepreneurial talents with innovative spirit, practical ability and social responsibility for colleges and universities, and provide solid talent support for promoting the high-quality development of China's economy and society.

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