Exploration and Practice of Curriculum System Construction of Innovation and Entrepreneurship Education in Higher Vocational Schools from the Perspective of Educational-business Alliances

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Abstract: This article aims to investigate and implement the establishment of an Innovation and Entrepreneurship Education (IEE) curriculum system in vocational schools, emphasizing collaboration between academic institutions and businesses. Given the current relevance and significance of IEE in this educational setting, the article initially highlights the critical role and impact of school-enterprise partnerships in advancing IEE. Through a comprehensive literature survey, the article then synthesizes existing research findings on IEE and school-enterprise collaborations in vocational schools, laying a solid theoretical foundation for the study. Methodologically, the article focuses on a specific vocational school as a case study, presenting practical instances of IEE implementation within a school-enterprise framework. A combined qualitative and quantitative analysis is conducted to assess the effectiveness of this approach. The findings reveal that the collaborative IEE curriculum has significantly enhanced students' innovation and entrepreneurship capabilities, heightened their awareness of these domains, and boosted their engagement in related activities. In conclusion, the research outcomes offer valuable insights for promoting the reform and advancement of IEE in vocational schools, emphasizing the pivotal role of school-enterprise collaborations.

1. Introduction

Under the background of current social and economic development, the status of IEE in vocational schools is increasingly prominent [1]. With the rapid development of science and technology and the continuous upgrading of industrial structure, the demand for talents with innovative and entrepreneurial ability is increasingly strong [2]. As an important base for training skilled talents, the quality of IEE in vocational schools is directly related to the implementation effect of the national innovation-driven development strategy [3]. However, the current IEE in vocational schools still faces many challenges, such as limited educational resources, single teaching mode and weak practical links [4]. These problems have restricted the improvement of higher vocational students' innovation and entrepreneurship ability to some extent [5]. Therefore, it is particularly important to explore and practice a new and efficient curriculum system of IEE.

As a new educational model, educational-business alliances realizes resource sharing and complementary advantages through close cooperation between schools and enterprises, which provides a new opportunity for IEE in vocational schools [6]. From the perspective of educational-business alliances, higher vocational IEE can better meet the market demand, enhance students' practical ability and innovative consciousness, and thus cultivate more innovative and entrepreneurial talents that meet the needs of society [7]. The purpose of this study is to explore and practice the curriculum system construction of IEE in vocational schools under the cooperation between schools and enterprises.

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2. Literature review and theoretical basis

2.1. Research status

IEE in vocational schools and educational-business alliances, as a hot research topic in the field of education, have attracted extensive attention of scholars. By combing the relevant literature, we can have a clear understanding of the research status in this field. With the implementation of innovation-driven development strategy and the promotion of "mass entrepreneurship and innovation", IEE in vocational schools has developed rapidly [8]. Many scholars have made in-depth research on the connotation, characteristics and modes of IEE in vocational schools from different angles, and put forward a series of valuable theoretical viewpoints and practical experiences. At the same time, educational-business alliances, as an important way to improve the quality of IEE in vocational schools, has also been widely concerned and practiced [9]. Scholars discussed the mode, mechanism and effect of educational-business alliances through case analysis and empirical research, which provided strong support for the reform and development of IEE in vocational schools.

2.2. Theoretical basis

Based on the theory of innovation education, entrepreneurship education and educational-business alliances, this study constructs the theoretical framework of the curriculum system of IEE in vocational schools.

The theory of innovative education emphasizes cultivating students' innovative consciousness and ability, and arousing students' creative potential and innovative thinking. In the IEE in vocational schools, the theory of innovation education requires us not only to teach students professional knowledge and skills, but also to pay attention to cultivating students' innovative thinking and ability, and to guide them to explore and innovate [10]. The theory of entrepreneurship education focuses on cultivating students' entrepreneurial spirit and practical ability, and emphasizes that students can learn entrepreneurial knowledge, master entrepreneurial skills and experience entrepreneurial process in practice through practical teaching and simulated entrepreneurship. In the IEE in vocational schools, the theory of entrepreneurship education requires us to combine theoretical teaching with practical teaching, so that students can continuously improve their entrepreneurial ability in practice. The theory of educational-business alliances emphasizes the close cooperation between schools and enterprises to realize resource sharing and complementary advantages. In the IEE in vocational schools, the theory of educational-business alliances requires us to combine the teaching resources of schools with the market resources of enterprises to jointly carry out IEE and cultivate students' innovation and entrepreneurship ability. Through educational-business alliances, students can get in touch with society and understand the market earlier, and improve their comprehensive quality and employment competitiveness.

3. Construction of curriculum system of IEE in vocational schools from the perspective of educational-business alliances

When constructing the curriculum system of IEE in vocational schools, we must first make clear the principles and objectives of the curriculum system construction. Based on educational-business alliances, it aims to cultivate students' innovative and entrepreneurial ability, which is the core principle of curriculum system construction. Through educational-business alliances, the real market environment and project cases of enterprises can be introduced, so that students can learn in practice and grow up in actual combat, thus better cultivating students' innovative and entrepreneurial spirit and practical ability.

In the selection and organization of course content, we should carefully select the innovative and entrepreneurial course content suitable for higher vocational students according to the above principles and objectives. The course content should not only pay attention to the teaching of theoretical knowledge, but also emphasize the cultivation of practical skills. For example, real

innovation projects of enterprises can be introduced as teaching cases, so that students can master the knowledge and skills needed for innovation and entrepreneurship in the process of analyzing and solving problems. In terms of curriculum implementation methods and strategies, the educational-business alliances model provides more possibilities for the implementation of innovation and entrepreneurship courses. We can adopt various teaching methods, such as project teaching, case teaching and situational teaching, so that students can practice in simulated or real market environment. At the same time, you can also invite business tutors to enter the classroom to share entrepreneurial experience with students and provide entrepreneurial guidance to help students better understand and master the essence of innovation and entrepreneurship.

4. Practical exploration of curriculum system of IEE in tertiary education

1) Introduction of practical cases

In order to deeply understand the implementation effect of the curriculum system of IEE in vocational schools and its practical influence on the cultivation of students' innovation and entrepreneurship ability, this article specially selects a vocational school with close cooperation with local enterprises as the object of practical research. In recent years, this vocational school has actively responded to the national policy call on IEE, and joined hands with many well-known local enterprises to jointly build a curriculum system of IEE based on educational-business alliances. In this curriculum system, the participation of enterprise tutors has become a highlight. They not only bring cutting-edge market information and industry trends to students, but also provide rich practical opportunities and entrepreneurial resources. Students have the opportunity to personally participate in real business projects, from the planning and implementation of the project to the summary and reflection, with the careful guidance of corporate tutors. In addition, the school has also set up a special innovation and entrepreneurship training base, where not only advanced equipment and tools are available for students to use, but also a special team of instructors to provide technical support and entrepreneurship counseling.

2) Analysis of practical effect

This article makes an in-depth qualitative and quantitative analysis of the practical cases of this vocational school in order to comprehensively evaluate the effectiveness of the curriculum system of IEE under educational-business alliances.

Table 1 shows the qualitative feedback results of students, teachers, business tutors and other parties collected through interviews and questionnaires. It can be seen that after the implementation of the curriculum system of IEE under educational-business alliances, students' awareness of innovation and entrepreneurship has been significantly enhanced, and at the same time, they have also shown stronger teamwork spirit and problem-solving ability in the process of project implementation.

Table 1: Qualitative analysis results

Feedback party	Feedback content
Student	The awareness of innovation and entrepreneurship has been significantly enhanced, and more active participation in innovation and entrepreneurship activities has been made.
Teacher	Students show stronger team spirit in project implementation.
Enterprise tutor	Students' ability to solve problems in project implementation has been improved.

Table 2 shows the changes in the proportion and types of students' participation in innovation and entrepreneurship activities before and after the implementation of the curriculum system of IEE under educational-business alliances. It can be seen that after the implementation, the proportion of students participating in innovation and entrepreneurship activities has been significantly improved, and the types of activities are also more diverse, including school competitions, simulated entrepreneurship, enterprise internship projects and real business projects. This further verifies the positive effect of the curriculum system of IEE under educational-business alliances in cultivating

students' innovation and entrepreneurship ability.

Table 2: Changes of students' participation in innovation and entrepreneurship activities

Period of time	Proportion of students participating in innovation and entrepreneurship activities	Activity type
Before implementation	30%	In-school competitions, simulated entrepreneurship, etc.
After implementation	75%	Campus competitions, simulated entrepreneurship, enterprise internship projects, real business projects, etc.

Table 3 shows the comparison of the effectiveness of IEE in this vocational school before and after educational-business alliances through quantitative analysis. It can be seen that after the educational-business alliances, the number of students participating in innovation and entrepreneurship projects, the total number of projects and the number of projects that have won awards at or above the provincial level have increased significantly, and at the same time, more projects have successfully attracted market investment and realized commercial operation. The market conversion rate has also improved significantly, indicating that educational-business alliances has a positive effect on improving the quality and market competitiveness of students' innovative and entrepreneurial projects.

Table 3: Quantitative analysis results

Index	Before educational-business alliances	After educational-business alliances	Change situation
Number of students participating in innovation and entrepreneurship projects	100	300	Increase by 200%
Total number of innovative and entrepreneurial projects	20	80	Increase by 300%
Number of projects that have won awards at or above the provincial level	2	20	Increase by 900%
Number of projects with market investment and commercialization	0	10	start from scratch
Market conversion rate (number of winning projects/total projects)	10%	25%	Increase by 15%

3) Practical experience and lessons

In practice, we have gained valuable experience and learned some lessons: (1) The foundation of educational-business alliances is mutual trust and mutual benefit. Schools and enterprises need to clarify their respective responsibilities and rights in cooperation and establish a long-term and stable cooperative relationship. Only in this way can we ensure the depth and breadth of educational-business alliances and truly realize resource sharing and complementary advantages. (2) The course content needs to be constantly updated to adapt to the rapid changes in the market. IEE is not static, it needs to keep up with the pulse of the market and keep pace with the times. Therefore, it is necessary to revise the course content regularly and introduce the latest industry knowledge, technical tools and practical cases to cultivate students' practical operation ability and problem-solving ability. (3) The importance of teaching staff. Excellent teachers can stimulate students' potential and guide them to success. Therefore, it is necessary to strengthen the training of teachers and provide more practical opportunities and resources to help them improve their teaching level and guidance ability. At the same time, it is necessary to actively introduce enterprise tutors with rich practical experience to participate in the course teaching to provide students with more comprehensive guidance.

5. Challenges and countermeasures of curriculum system construction of IEE in vocational schools

Challenges faced:

There are many challenges in the course system construction of IEE in vocational schools. First of all, the cooperation mechanism and benefit distribution between schools and enterprises have not been completely solved, which restricts the depth and breadth of cooperation to some extent. Secondly, the teachers in some vocational schools are relatively weak, lacking teachers with rich practical experience to guide students. Finally, the integration and optimization of curriculum resources is also an urgent problem, which needs to make full use of the resources of enterprises and society to enrich the curriculum content and practice.

Countermeasures and suggestions:

In view of the aforementioned challenges, this article proposes the following countermeasures and suggestions. Firstly, it is imperative to bolster policy guidance by formulating and refining pertinent laws, regulations, policies, and measures. This will furnish a robust institutional guarantee for educational-business alliances. Secondly, enhancing the cooperation mechanism is crucial. This involves establishing a curriculum development, teaching implementation, and achievement evaluation mechanism that involves both schools and enterprises working in tandem. This ensures that the interests of both parties are adequately protected. Thirdly, elevating the caliber of teachers is essential. This entails intensifying teacher training and practical experiences, thereby enhancing their professional expertise and hands-on capabilities. Lastly, it is vital to actively engage enterprise tutors with extensive practical experience in course instruction and mentorship.

6. Conclusions

Through the research and practice of this article, the following conclusions are drawn: Educational-business alliances plays an important role and value in the construction of curriculum system of IEE in vocational schools. Through educational-business alliances, we can better cultivate students' innovative and entrepreneurial ability, improve their comprehensive quality and promote their all-round development. At the same time, educational-business alliances can also provide more abundant teaching resources and practical opportunities for vocational schools and promote the in-depth development of IEE. In addition, some challenges and problems have been found through practical exploration, such as the cooperation mechanism between schools and enterprises and the distribution of benefits, and the relatively weak teaching staff. In view of these challenges, this article puts forward specific countermeasures and suggestions, such as strengthening policy guidance, improving cooperation mechanism and improving teachers' level.

Looking forward to the future, we will further deepen the educational-business alliances model and expand the international vision of IEE. First of all, we will explore the establishment of a closer educational-business alliances mechanism to achieve resource sharing, complementary advantages and mutual benefit. Secondly, we will actively introduce international advanced ideas and methods of IEE, and carry out localization transformation and application in combination with the actual situation. Finally, the follow-up evaluation and continuous improvement of the curriculum system of IEE will be strengthened to ensure that it keeps pace with market demand and social development.

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