

Exploration of the Four-in-One Construction of Production, Education, and Integration and Talent Cultivation in Local Medical Colleges

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Abstract: Production-education integration is a new talent cultivation model that aims to organically combine the resources of universities, enterprises, and society to jointly cultivate applied and practical talents. This helps meet industry talent needs and promotes industrial upgrading and development. However, there are still some problems in the practical process of this model in medical colleges. These include the lack of effective incentive mechanisms, insufficient policy and regulatory support, and inadequate coordination of school-enterprise cooperation. This article mainly discusses the background and main problems of the collaborative cultivation of applied undergraduate medical talents between local medical colleges and corporate enterprises. It also analyzes the advantages and disadvantages of production-education integration cooperation and proposes improvement measures. Among them, the importance of establishing a reasonable incentive mechanism is emphasized. In the cooperation of production-education integration, it is essential to actively organize university teachers to participate in practical exercises in enterprises, guide enterprise technical experts to teach in schools, and regularly reward outstanding school teachers and enterprise backbone both spiritually and materially. In addition, the article highlights the importance of giving full play to the role of local governments in school-enterprise cooperation. Issuing policies and regulations on school-enterprise cooperation can ensure the effectiveness and enforceability of contracts between both parties. Building platforms for educational cooperation, talent cooperation, and scientific and technological achievements transformation can also promote the coordinated development of school-enterprise cooperation. The research conclusion believes that through continuous deepening of school-enterprise cooperation, win-win results of complementary advantages, resource sharing, mutual benefit, and common development can be achieved. This can play a positive role in promoting the reform of local medical college management systems, talent cultivation models, educational opening up, and inject new vitality and motivation into the development of the medical and health industry. This article provides useful thinking for the reform and development of practical talent cultivation models. It also has some enlightening and reference significance for universities and enterprises to carry out cooperative education.

Keywords: Local medical colleges; school-enterprise cooperation; talent cultivation

1. Background

With the rapid development of society, economy, and technology, the demand for talent in all industries, including the medical and health industry, is constantly increasing. [1] To implement the measures promoting cooperation between vocational schools and enterprises, issued by six departments including the Ministry of Education, and according to the work deployment of the Guangxi Zhuang Autonomous Region Education Department on the application-oriented undergraduate talent industry-education integration collaborative training pilot project application in 2019, it is necessary to give full play to the professional advantages of cooperative universities and the industrial advantages of enterprises, integrate industrial and teaching resources, and jointly cultivate application-oriented undergraduate talents. [2] Exploring new ways and models of industry-education integration collaborative training for applied undergraduate medical talents, actively exploring the construction of a "bridge" for vocational education talent training, and striving to improve the quality of applied undergraduate medical talent training are of great significance to education and teaching reform.

2. Major problems in the integration of production and education in medical colleges

In order to cultivate more healthcare industry talents that are suitable for market demand, we have attempted to integrate production and education. This aims to improve the quality and level of talent training and better adapt to market demand. [3] Through cooperative education, schools and enterprises can have in-depth exchanges and learning, understand and learn from each other's advantages, and reform professional structure setting, school-running mode, educational management system, teaching methods, and other aspects to improve their own teaching quality, level, and enhance the quality of talent training. [4] In this process, both schools and enterprises can obtain the resources and advantages they need in cooperation, achieve complementary advantages, work together, and jointly promote the development of the medical industry. [4] However, there are many problems in the integration of production and education cooperation education. [5]

3. Analysis of the Causes of Problems

Cooperative education is an essential form of collaboration and exchange between local universities and enterprises. Cooperative education enhances the teaching capacity of universities and expands students' employment opportunities. However, several issues hinder the effectiveness of cooperative education.

Firstly, different universities have different teaching philosophies, modes, methods, and levels. [1] To address this, schools and teachers should engage in in-depth exchanges and learning during cooperative education. They should understand and learn from each other's advantages, carry out reforms in professional structure setting, school-running mode, education management system, teaching methods, etc. [6] This will improve the quality of talent cultivation, as well as the scientific research capability of universities, and accelerate the transformation of scientific research achievements. Universities should build a characteristic and diversified quality evaluation system to strengthen communication, deepen understanding, seek common ground while reserving differences, and converge strengths while tolerating differences. [4]

Secondly, there is a lack of supporting incentive measures for schools and enterprises. Schools focus on teaching and scientific research achievements of teachers in talent cultivation, while enterprises only focus on economic benefits in the operation process. [2] A reasonable incentive mechanism should be established to actively organize university teachers to participate in practical training in enterprises, guide enterprise technical experts to teach at universities, and regularly reward outstanding school teachers and enterprise backbones in both spirit and material.

Thirdly, the cooperation between universities and enterprises should be in line with the market, targeted at cultivating talents for enterprises, and strengthening the effectiveness of talent. Excellent managers or technicians of enterprises should teach at universities, promote mutual employment between universities and enterprises, enterprise managers go to universities to teach students, and at the same time, university teachers train enterprise employees to improve their quality. [2] Through school-enterprise cooperation, enterprises acquire talents, students obtain skills and job opportunities, and universities develop; thus achieving a win-win situation of "complementary advantages, resource sharing, mutual benefit, and common development" between universities and enterprises. [1]

Fourthly, local governments lack a guaranteeing system for school-enterprise cooperation, such as the safety of students' internships in enterprises, which should be borne by both universities and enterprises. Local governments can ensure the effectiveness and enforceability of the contract between both parties by issuing policies and regulations on school-enterprise cooperation, build a platform for sustainable development of local talents, and promote the long-term development of school-enterprise cooperation. [7] [8]

4. Building a Four-in-One Solution

This article proposes four measures to promote the integration of "universities-enterprises-government" in the construction of production-education integration: establishing reasonable evaluation criteria and developing corresponding medical talent training programs, matching incentive measures for school-enterprise cooperation, aligning with the market, and leveraging government functions.

Firstly, to improve the quality of medical talent training, it is necessary to establish reasonable

evaluation criteria and develop corresponding training programs. Differences in teaching quality evaluation standards between universities are a common problem, but we can solve this by establishing reasonable evaluation criteria and developing corresponding training programs. Communication and understanding are key in school-to-school and school-enterprise cooperation. By seeking common ground while reserving differences, we can integrate similarities and differences to build a characteristic and diversified quality evaluation system. In establishing evaluation criteria, we should consider teaching objectives, curriculum settings, teaching methods, faculty strength, teaching facilities, etc. Adopting scientific evaluation methods such as student evaluation, teacher evaluation, and peer evaluation is also crucial to ensure the objectivity and accuracy of evaluation. Strengthening communication and cooperation is the key to improving teaching quality in school-to-school and school-enterprise cooperation. Different universities can exchange experiences, share strengths and weaknesses, and provide useful references for promoting education and teaching reforms. Moreover, school-enterprise cooperation is an important way to improve teaching quality. Enterprises can provide practical teaching bases and opportunities for schools, and provide students with practical exercise opportunities to enhance their application and practical capabilities. In summary, solving the differences in teaching quality evaluation standards between universities requires comprehensive and systematic measures. By establishing reasonable evaluation criteria and developing corresponding training programs, strengthening school-to-school and school-enterprise cooperation, and adopting scientific evaluation methods, we can effectively improve teaching quality and provide strong support for talent training and education and teaching reforms.

Secondly, corresponding school-enterprise supporting incentive measures must be formulated to address the lack of supporting incentive measures for schools and enterprises. The following specific and in-depth measures can be taken: First, establish effective incentive mechanisms, including spiritual and material rewards. Schools and enterprises can jointly formulate reward plans to regularly reward outstanding school teachers and enterprise backbones in spirit and material. For example, awards such as the Excellent Teacher Award, Outstanding Enterprise Backbone Award, and Outstanding Student Award can be set up to encourage them to play a greater role in school-enterprise cooperation. Actively organize university teachers to participate in practical exercises in enterprises and guide enterprise technical experts to teach in schools. Through practical exercises, teachers can better understand the needs of enterprises and thus better cultivate students' practical and application abilities. Enterprise technical experts teaching in schools can provide more practical teaching content and learning opportunities for students, thereby improving their practical abilities. At the same time, schools and enterprises can also jointly organize seminars, forums, and other activities to promote communication and cooperation, deepen mutual understanding and trust. Finally, establish a long-term and stable school-enterprise cooperation relationship and jointly formulate talent training plans and curriculum settings. Schools and enterprises can jointly participate in the formulation of talent training plans and curriculum settings to ensure the cultivation of applied talents that meet market demand. Through school-enterprise cooperation, we can better understand market demand and industry development trends, and thus develop more market-oriented talent training plans and curriculum settings to improve teaching quality and student employment competitiveness. In addition, schools and enterprises can jointly develop characteristic courses to improve students' practical abilities and professional quality and provide students with broader employment and development opportunities. In summary, schools and enterprises should strengthen cooperation, promote the integration of production and education, give full play to their respective advantages, establish long-term and stable cooperative relations, and make positive contributions to the cultivation of high-quality talents and the promotion of social and economic development.

Thirdly, the issue of the mismatch between talent cultivation and market job demands in the collaboration between universities and enterprises needs addressing. To solve the lack of market orientation and effectiveness in cooperation, the following measures can be taken: Establish market-oriented talent cultivation plans and curriculum design. Universities and enterprises should jointly participate in the development of talent cultivation plans and curriculum design. They should thoroughly understand market demands and industry development trends, and formulate more market-oriented curriculum design and teaching plans. This will enhance students' practical and applied abilities and increase their employability. Strengthen communication and exchange between universities and enterprises, and establish long-term stable cooperative relationships. Universities and enterprises should hold regular symposiums, seminars, and other activities to exchange and discuss cooperation matters. They should seek win-win cooperation and establish long-term stable cooperative mechanisms with mutual responsibilities and obligations. Encourage enterprise technical personnel to teach in universities, and strengthen talent exchange and cooperation between universities and enterprises. Enterprise technical

personnel can provide more practical teaching content and industry experience for students, helping them understand industry development trends and market demands better. This will improve their practical and applied abilities. Meanwhile, teachers can also participate in practical exercises in enterprises, better understanding their needs and industry characteristics, thus improving teaching and talent cultivation quality. Strengthen cooperation research and scientific research cooperation between universities and enterprises to improve teaching and research strength. Universities and enterprises should strengthen scientific research cooperation among teachers and experts. They should jointly carry out scientific research projects and technological research and development. This will promote the transformation and application of scientific research results, and improve teaching and talent cultivation quality. In summary, universities and enterprises should strengthen cooperation, establish market-oriented talent cultivation plans and curriculum design, enhance communication and exchange between universities and enterprises, encourage enterprise technical personnel to teach in universities, strengthen talent exchange and cooperation between universities and enterprises, and strengthen cooperation research and scientific research cooperation between universities and enterprises to improve teaching and research strength. These measures can make the cooperation mode between universities and enterprises more market-oriented, target-oriented talent cultivation for enterprises, and enhance the effectiveness of talent cultivation.

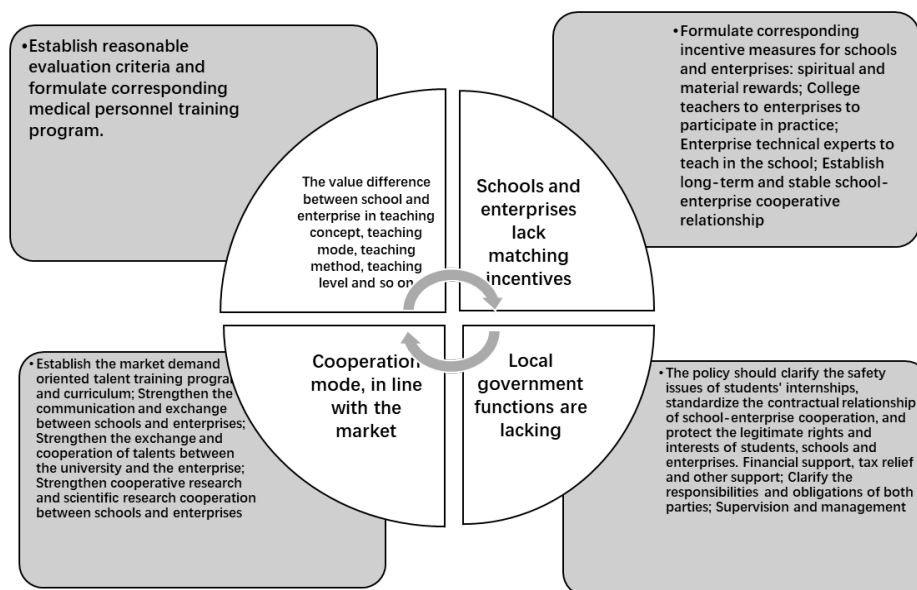


Figure 1: Four-in-one structure diagram of industry-education integration and talent cultivation

Fourth, to promote the cooperative relationship between universities and enterprises, local governments can play a significant role. However, as a third party, they lack guarantee systems for school-enterprise cooperation. For instance, local governments have not issued relevant policies to provide support for ensuring the safety of students during internships in enterprises, nor have they provided incentives such as financial support, tax reductions, and other benefits to promote school-enterprise cooperation. To address this issue, local governments can take the following measures. Firstly, they can issue policies and regulations to clarify the safety of student internships, regulate contractual relationships between universities and enterprises, and protect the legitimate rights and interests of all parties. Secondly, local governments can establish a long-term mechanism for school-enterprise cooperation by formulating relevant policies and regulations, defining the responsibilities and obligations of both parties, and ensuring the stability of the cooperative relationship. Thirdly, local governments can supervise and manage school-enterprise cooperation, formulate evaluation standards and assessment mechanisms, and ensure its smooth operation. Lastly, they can strengthen the publicity and promotion of school-enterprise cooperation, enhance public awareness and understanding, and create a favorable environment for its in-depth development. By implementing these measures, local governments can provide more stable and powerful support and guarantees for school-enterprise cooperation, thus promoting the coordinated development of the two sectors. Four-in-One Construction of Production, Education, and Integration and Talent Cultivation model, problems and countermeasures, see Figure 1 for details.

5. Summary

In short, addressing the differences in quality evaluation standards between universities requires comprehensive and systematic measures. To achieve this, reasonable evaluation criteria and corresponding training programs should be established, inter-school and school-enterprise cooperation should be strengthened, and scientific evaluation methods should be adopted. These steps can effectively improve the quality of teaching, providing strong support for talent cultivation and educational reform. To address the lack of supporting incentive measures for schools and enterprises, effective incentive mechanisms can be established. High school teachers can be actively organized to participate in practical exercises in enterprises, enterprise technical experts can be guided to teach in schools, and long-term stable school-enterprise cooperation relationships can be established. To address the lack of market orientation and effectiveness in the cooperation between universities and enterprises, market-oriented talent training programs and curriculum settings can be established. Communication and exchanges between schools and enterprises can be strengthened, enterprise technical personnel can be encouraged to teach in universities, and cooperation research and scientific research between schools and enterprises can be strengthened. To address the lack of relevant security systems for local governments as third parties in cooperation between universities and enterprises, relevant policies and regulations can be promulgated, long-term mechanisms can be established, and supervision and management of school-enterprise cooperation can be strengthened. Through these measures, the cooperation mode between universities and enterprises can be more in line with the market, targeted talent can be cultivated for enterprises, and the effectiveness of talent can be strengthened. At the same time, it can also provide strong support and guarantee for the development of local medical colleges and enterprises.

Acknowledgement

This study was supported by Guangxi University Student Innovation and Entrepreneurship Training Project in 2021: National Medical Intellectual Property Incubation platform, Project Number:202110599033S; 2021 Guangxi Higher education Undergraduate Teaching Reform Project "Innovation and Entrepreneurship Integration Teaching Reform in Medical Colleges under the New Medical Background", project number: 2021JGA282.

References

- [1] Weibing Tang, Hui Wen, and Jianping Peng, *Construction of Collaborative Education Mechanism under the Concept of Integration of Production and Education*. *China Higher Education*, 2018(08): pp. 14-16.
- [2] Dan Cao, *From "School-Enterprise Cooperation" to "Integration of Production and Education" - Confusion and Reflection on Promoting Deep Integration of Production and Education in Applied Undergraduate Colleges*. *Journal of Tianzhong*, 2015. 30(01): pp. 133-138.
- [3] Min Zhao, Susu Zhang, and Jia Sun, *How to Promote Innovation and Entrepreneurship Education Reform in Higher Medical Colleges and Universities*. *China Continuing Medical Education*, 2019. 11(01): pp. 19-21.
- [4] Wei Zhang, Yufei Chen, and Weijun Cao, *Exploration of Cultivating Innovation and Entrepreneurship Ability of Preschool Education Majors Under the Background of School-Enterprise Collaborative Education*. *Journal of Changji College*, 2022(01): pp. 99-107.
- [5] Qun Huang, Zhengyue Huang, and Jian Huang, *Discussion on the Problems and Countermeasures of Five-Year Clinical Medical Practice Teaching*. *Science and Technology Innovation Herald*, 2014. 11(19): pp. 99-101+103.
- [6] Zhongheng Wei et al., *Application of One-Master-Multiple-Tutor System Combined with PBL Teaching Method in Standardized Training of Oncology*. *Youjiang Medicine*, 2020. 48(09): pp. 717-720.
- [7] Shanjiang Yang, *A New Exploration of the Roles of Colleges and Universities, Enterprises, and Governments in the Integration of Production and Education - Based on the "Triple Helix" Theoretical Framework*. *Higher Agricultural Education*, 2014(12): pp. 117-119.
- [8] Xiaozhen Xie, *Research on the Mechanism and Mechanism Design Path of "Integration of Production and Education"*. *Research in Higher Engineering Education*, 2019(05): pp. 81-87.