Based on the Integration of Industry and Education: Exploration and Practice of Talent Cultivation Reform in Application-Oriented Universities-Taking G University as an Example

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Abstract. With the supply-side reform of higher education, there are many restrictive factors in the reform and innovation of talent cultivation in application-oriented universities in the aspects of school orientation, professional structure adjustment, talent cultivation mode reform, etc. In order to solve the common problems in applied talent cultivation, The paper takes the G University in Dongguan as the research object, sorts out and summarizes its practice in the key aspects of talent cultivation, such as the reform of talent cultivation concept, the construction of professional connotation, the construction of “double - qualified” team, the improvement of practical teaching and the integration of industry and teaching, hoping to play a reference role for similar universities to a certain extent.

Introduction

With the supply-side reform of higher education, some local colleges and universities have gradually changed to applied ones in response to the national requirements, exploring the applied talents cultivation education with local characteristics. Facing this transformation, how to reform and adjust the school orientation, the professional structure, the teaching staff, the personnel cultivation mode and corresponding teaching management in application-oriented universities has become a problem that must be deeply considered and comprehensively studied. This paper takes G University as the research object and summarizes its practice in cultivation applied innovative talents, hoping to provide useful reference for solving these common problems.

Problems Faced by Talent Cultivation in Application-Oriented Universities

The cultivation of applied talents is a complex system engineering, involving all aspects both internal resistance and external constraints.

School Orientation

After the transformation of local colleges and universities, how to reposition the original advantages of running schools has become a primary consideration. The original idea is obviously no longer in line with the needs of modern economic development, which means that colleges and universities should break through the pattern of semi-closed state in the past and solve the problem that the talent cultivation and regional industrial development does not match each other. “Turn the thinking of running schools to serve the local economic and social development, turn the orientation of running schools to cultivation applied technical and skilled talents, to enhancing students’ ability of employment and entrepreneurship, and turn the mode of running schools to the integration of industry and education and school-enterprise cooperation”[1].

Professional Structure Adjustment

Professional construction is an important support for personnel cultivation. The adjustment of professional structure is undoubtedly a problem that needs careful consideration in the transformation and development of colleges and universities. First, there is the problem that how to integrate the existing specialties, retaining the strong ones and removing the weak ones. On the one
hand, how to continue to consolidate the original dominant specialties and then make them to be the brand of the college; On the other hand, how to add a discipline that is more closely integrated with local emerging industries to meet the needs of local industrial transformation and upgrading and create a discipline or demonstration discipline. The second is how to avoid the phenomenon of “attaching importance to professional setting but despising professional construction” and how to improve professional attraction in the construction of professional connotation.

**Talent Cultivation Mode Reform**

The cultivation of applied talents is not only different from the academic talents cultivated in ordinary universities, but also different from the technical talents cultivated in higher vocational colleges. Therefore, in the process of talent cultivation, application-oriented universities are faced with how to formulate standards and specifications for applied talent cultivation based on the basic laws of undergraduate education, and further focusing on the industry, professional groups and social needs, and accordingly to construct suitable professional talent cultivation programs, curriculum content systems, “double - qualified” teaching team, teaching methods, talent cultivation quality evaluation system and ways for the integration of industry and education.

**Teaching Management Guarantee**

Obviously, the cultivation of applied talents needs a flexible teaching management system. Application-oriented universities are faced with how to further improve and perfect the relevant teaching standards and quality standards based on the original teaching management system so as to serve the current reform of applied talent cultivation. For example, further revise and improve the management system of graduate practice, graduation thesis (design) management system, school-enterprise cooperation management system and teaching quality monitoring system.

**Case Analysis: Exploration and Practice of G University**

Based on the above analysis of the constraints on the cultivation of applied talents, this paper takes G University as the research object and makes a specific analysis on the adjustment of professional structure, curriculum system design, teaching staff construction, school-enterprise cooperation and discipline competition to explore how application-oriented universities take the applied road.

**Exploring the Connotation of Applied Talents**

The researchers analyzed the specific connotation of applied talent cultivation and emphasized that application-oriented universities have their own distinct characteristics in talent cultivation objectives, specifications and methods (see Table 1) [2]. In view of its own advantages and the needs of Dongguan’s industrial transformation and upgrading, focusing on the applied talent cultivation connotation, G University strives to become an applied undergraduate college with distinctive school-running characteristics, strong teaching strength and certain scientific research and application ability, ranking among the advanced colleges and universities of similar private colleges in China, based on the idea of dislocation development and fostering strengths and avoiding weaknesses.

<table>
<thead>
<tr>
<th>Types of talent cultivation</th>
<th>Cultivation specifications</th>
<th>Cultivation ways</th>
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<tbody>
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<td></td>
<td>Knowledge structure</td>
<td>Quality structure</td>
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<tr>
<td>Applied specialist</td>
<td>Focusing on industry demand, and the combination and application of knowledge</td>
<td>Comprehensive ability, practical ability and technological innovation ability</td>
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</table>
Optimize the Speciality Structure

Discipline speciality structure is the carrier that reflects the direction, specification and characteristics of applied talent cultivation. According to the development needs of Dongguan’s industry, G University vigorously develops the applied specialties corresponding to Dongguan’s pillar industry, advantageous industry, high-tech industry and emerging industry. Moreover, G University specially formulated and implemented Management Methods for Setting up Speciality of G University and Discipline and Specialty Construction Plan of G University, and adjusted the speciality layout according to the dynamic development of industry. At the same time, G University has made solid progress in the construction of speciality connotation, taking the lead in carrying out comprehensive reform pilot projects in software engineering, automotive service engineering, internet of things engineering, network engineering and other specialties, promoting reforms in talent cultivation mode, curriculum materials, teaching methods, teaching management and other important links, concentrating its efforts on cultivating superior speciality, leading and demonstrating the reform and development of other specialties.

In addition, G University’s curriculum system of scientific design organically integrates theoretical and practical courses on the basis of full demonstration, and has set up an integrated curriculum system consisting of public required courses, public elective courses, basic required courses, professional required courses, professional group courses, professional optional courses and special practical courses. This curriculum system is organically linked and well-structured, focusing on the continuity, consistency and applicability of training objectives, integrating theoretical teaching with practical teaching, and ensuring the coordinated development of students’ knowledge, ability and quality. G University has also strengthened the construction of excellent courses and characteristic courses through school-enterprise joint development and other means, and has applied and shared them through the teaching resource library and the World University City Cloud Platform to provide students with online quality course resources.

Strengthen the Construction of “Double - Qualified” Team

In terms of the construction of teaching staff, G University has built several higher-level teaching staff teams, such as financial management, English (applied translation direction) and software engineering, with the teaching team construction project as the carrier. At the same time, G University implements the practice training system for young teachers in enterprises and public institutions, and further improves teachers’ practical application ability by sending teachers to enterprises for further study and school-enterprise cooperation research and development. On the basis of internal training, G University has established a good cooperative relationship with local key enterprises, introduced a group of senior talents with many years of work experience, and employed the backbone of enterprise technology and management as part-time teachers. These projects and carriers support each other, improving the comprehensive quality and ability of professional teachers, optimizing the structure of teachers and driving the overall construction of teachers.

Improve the Practical Teaching System to the Maximum Extent

Practical teaching is an important link in the cultivation of applied talents. G University attaches great importance to practical links such as experiments and training, and focuses on training students’ comprehensive application ability. On the one hand, through the integration of practical teaching resources inside and outside the college, a number of experimental teaching centers and university students off-campus practical teaching bases have been built to further improve the practical teaching conditions. On the other hand, a practice system including experimental training, practice, graduation thesis (design), discipline competition, social practice and qualification certification has been established, and management documents such as Measures for the Management of Student Practice in G University and Measures for the Management of Graduation Thesis (Design) in G University have been revised to regulate and monitor the whole process of practice, graduation thesis and other work.
Among them, discipline competition is a challenge to students’ design ability, practical ability, psychological quality and team cooperation. While testing students’ comprehensive application of knowledge, it has become an important way to cultivate applied talents with more emphasis on improving students’ hands-on ability [3]. G University has taken a series of measures to vigorously promote the discipline competition and promote the integration of science and education. First, a secondary management organization centered on the academic affairs office and the secondary college has been set up and its management responsibilities have been clearly defined. Second, the relevant management system is improved, such as Rewards for Teachers and Students to Participate in Various Competitions and an effective incentive mechanism was established. G University does not only set up special funds to support students to participate in various professional skills competitions, but also awards teachers and students who win prizes in the competitions and takes the guidance and achievements of discipline competitions as the main indicators for teachers’ academic year assessment and awards evaluation. Through vigorously advocating organization, teachers and students of G University have won awards in national and provincial competitions many times, playing an active role in training applied talents.

Deepen the Integration of Industry and Education, and Cooperative Education

Integration of industry and education and cooperative education are the important connotations of the cultivation of applied talents. G University closely centers on the cultivation objectives and specifications of applied talents, according to the cultivation concept of “solid foundation, wide range, focusing on application and skills” and combined with the actual situation of various specialties, actively invites industries and enterprises to participate in the revision of talent cultivation programs and curriculum construction, highlighting the characteristics of applied talents. As a result, English and other specialties in the School of Foreign Languages have formed a very distinctive “1 + N + 1” talent cultivation mode. Among them, the first “1” represents professional competence and emphasizes “solid foundation”. “N” represents the direction of professional positions, such as international commerce, international business, etc., reflecting “wide range”. The second “1” represents the expertise of industry enterprises and emphasizes “focusing on application”. “Focusing on skills” implements in the whole teaching process.

In addition, G University, relying on the advantage of highly matching the discipline with the local economic and social development, by jointly organizing professional innovation class, strengthens in-depth cooperation with industry associations and enterprise alliances, especially the in-depth cooperation between engineering majors and enterprises, and carries out personnel cultivation in coordination with enterprises. For example, the computer institute of this university has worked closely with enterprises to set up an innovation class for outstanding software engineers, an elite innovation class for the internet of things industry and an innovation class for Huawei network engineers to deepen the integration of industry and education.

Conclusion

Taking G University as the analysis object, this paper sorts out its practice in personnel cultivation concept, professional connotation construction, personnel cultivation mode reform, practical teaching management and system construction, and summarizes some experiences around “integration of industry and education, school-enterprise cooperation”, hoping to play a reference role for similar universities to a certain extent. Of course, applied talent cultivation is a systematic project. In order to establish a more mature and characteristic talent cultivation path, it is also necessary to deepen the integration of industry and education based on the local industrial development according to its own characteristics and foundation.
Acknowledgement

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[1] Suggestions on guiding the transition of general undergraduate colleges to applied applications in some localities http://www.moe.gov.cn/srcsite/A03/moe_1892/moe_630/201511/t20151113_218942.html
