Exploration and Practice for Running Applied University in the Context of Transformation

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Abstract. Due to the development of industrial modernization and popularization of higher education, applied universities are the inevitable outcome of scientific and technological progress and economic and social development. The connotation of applied talent training should be recognized and understood from the aspects of school orientation, talent goal orientation, talent training scheme, talent training mode and so on. In addition, it is also necessary to establish a cooperative mode with industry and enterprise in the practice of running a school. Only by strengthening the practice teaching, highlighting the ability and specialty training, attaching importance to scientific research and applying research, can we widen the development space and improve the competition level.

1. Instruction

In October 2015, the Ministry of Education and other two ministries jointly issued the Guidance on Prompting the Transformation of Local Ordinary Undergraduate Colleges and Universities to the Applied Type, which triggered a heated discussion among academic circles, colleges and society. From the historical point of view, the transformation and development of undergraduate colleges and universities is not a unique phenomenon of higher education in China, but a worldwide law of higher education development.

After the second industrial revolution in the 19th century, Europe and the United States urgently needed a large number of technical development and applied talents to serve the industry. In a certain period of time, various technical colleges and universities emerged as the times require. In the process of economic development, Britain, USA, Japan, Korea, and Taiwan have formed an upsurge in the establishment of applied universities. Taking Germany as an example the German industrial economy developed rapidly in the 1970s. However, at that time, the teaching of German universities was too theoretical and vocational education was too difficult to meet the requirements of applied technology talents in the development of science and technology. In this context, applied universities have sprung up. Because of the distinctive characteristics in running schools, emphasizing the cultivation of students' technical application, it has trained a large number of high-quality applied talents for the economic and social development of Germany. This endeavour promoted the process of industrial modernization in Germany. Also, it is regarded as the "secret weapon" for the development of German economy. At present, there are 247 applied universities in Germany with more than 700,000 registered students, accounting for about one third of the total number of students in German universities and colleges. The history of higher education development in Europe and America shows that the emergence and rise of applied universities is not a simple educational phenomenon in essence, it is accompanied by the process of industrial modernization and popularization of higher education. Also, it is the inevitable result of scientific & technological progress and economic & social development to a specific stage, which in return promotes the historical transformation of the whole higher education.

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Historical carriage is always good at tossing and turning, and it is accustomed to staying in different territories and countries for performing the same repertoire at different times and places. Today, with the advancement of China's industrialization process, in response to the UK's "high-value manufacturing strategy", the US's "National Strategic Plan for Advanced Manufacturing", and Germany's "Industry 4.0 Strategy", the State Council's executive meeting deliberated on the adoption of "Made in China 2025" and regarded it as a national strategy.

The experience of industrial development and higher education in developed countries in Europe and America shows that in order to fulfill the historical mission of "made in China 2025", we should not only train research-oriented talents with first-class basic research ability and scientific and technological development level, but also train a large number of technical practical and management applied talents. In this respect, applied universities carry the historical mission of national industrial modernization to a certain extent. Therefore, to discuss and attach importance to the construction of applied universities is to conform to the general trend of industrial change and education in China.

2. Features: The Connotation of Applied Universities

The classification of higher education has always been a very challenging subject in both theory and practice. Applied universities are the product of industrial development and the popularization of higher education. Different from research universities, the concept of applied universities includes not only applied technology universities, but also technical universities, teaching universities and teaching service universities. Chinese scholars do not clearly define the origin, pedigree, connotation and extension of applied universities. Even in Germany, where the educational system is sound, it is interpreted as a special type of university in Langenscheidt Großwörterbuch Deutsch als Fremdsprache, which places more emphasis on practical training for students than the comprehensive universities. In fact, this is also a relatively general elaboration, although it highlights the importance of practical teaching, it is still not clear to reflect its connotation with other characteristics.

In China, the aforementioned Guidance put forward that colleges and universities should really turn the idea of running schools to serve the local economic and social development, transfer to the cooperation of schools and enterprises, transfer to the cultivation of applied technical and technical talents, and transfer to the enhancement of students' ability of employment and entrepreneurship, thus comprehensively improving the ability of the school to serve the regional economic and social development. In conjunction with the Langenscheidt Großwörterbuch Deutsch als Fremdsprache and the aforementioned Guidance, we try to extract the relevant connotations and characteristics of applied universities.

From the orientation of running schools, applied universities are mainly oriented to regional economic and social development. Taking the local economic construction and social development as the main service object, the purpose of running a school is to serve the local and regional economic development.

From the orientation of cultivating talents, applied universities advocate the cultivation of applied technical and managerial talents. Specifically, it is to train the production, management, service front-line engineering technology, and management of the applied talent.

From the perspective of talent training mode, applied universities emphasize the construction of new modes and new ways for education, and advocate the establishment of cooperative education mechanism with deep participation of enterprises.

From the perspective of talent training program, applied university emphasizes practical teaching and pays attention to the cultivation of applied ability, and practical teaching is an important part of applied university.
3. Practice: Exploration for Running an Applied University

3.1. Orienting towards the local, focusing the development of regional industry, and insisting on service for the regional economic and social development

Locality is an important attribute of applied universities, and therefore it is the primary task of applied universities to run schools for the local. According to the needs of regional economic and social development, applied universities should combine the teaching of specialty construction, (especially for science and engineering major) with the industrial development of their region to carry out the professional layout of discipline around the industries with regional key development, and promote the docking of discipline chain, major chain, and industry chain. For example, it is necessary to focus on the needs of local and regional industrial transformation and upgrading to open urgent and scarce specialties for applied talents; to focus on the advantages and characteristics of regional traditional industries; to cultivate new majors with development potential according to the regional industrial development plan; and to give full play to the advantages of talent training and discipline construction in applied universities, thus serving regional economic and social development.

3.2. Rooting industry, working with the enterprise for education, and standing on the shoulders of giants to seek better development

The cooperative education of schools and enterprises is a new type of education mode advocated by the government. Thus, the applied universities should innovate the target mode of running schools, and require the secondary colleges to actively explore the new mode and new ways of cooperation with the industry and enterprises to carry out deeper cooperation with them. In the process of talent training, the "big money" of the industry and enterprises can further stimulate the vitality of running schools, only by relying on famous enterprises can we further stimulate the vitality of running schools, enhance the level of talent training, enhance social recognition, and form a new situation of coordinated development of society, enterprises and schools. On how to carry out school-enterprise collaborative education, there are two levels of organizational structure and teaching management can be explored. At the organizational structure level, both schools and enterprises should set up cooperative school based on the cooperation mode of "complementary resources, professional co-construction, student co-education, college leading enrollment and enterprise leading employment ". At the teaching organization level, the school and enterprise jointly formulate the training plan and design the curriculum system, the enterprise participates in the personnel training all the time. In this level, the school is responsible for the teaching of the public basic courses and the professional basic courses, and the enterprise engineers are responsible for teaching the professional courses, guiding the experiment and practice, and implementing the applied teaching mode of the system.

3.3. Focusing on practice and boosting the development of training of applied talents

Practical teaching is the essentials of talent training in applied universities. Practical teaching needs the support and cooperation of "hardware" and "software ". "Hardware" is all kinds of laboratory, practical training and other platforms, and it is the carrier of practical teaching; however, "software" is the collection of teaching methods, programs, models, and it is the driving force of practical teaching. Conclusively, good hardware plus reasonable software, can polish the spark of training applied talents.

At the level of "hardware ", applied universities should actively create high-quality educational resources, continuously increase the input of resources, focus on building a high-quality applied teaching and experimental platform, and improve the guarantee of all kinds of practical training bases, etc. In view of the weakness of students' poor practical ability and weak innovation ability, applied universities should cultivate students' practical and innovative ability to create conditions by establishing innovation laboratory, setting up various innovation teams, and organizing students to participate in all kinds of design competitions.
At the "software" level, the most important thing is to emphasize practical teaching to reform the applied universities to innovate the talent training model. Through establishing the mode of professional innovation class, we can break through the old classroom-centered teaching mode and the infusion teaching method, take the form of participating in the research and development project and learning with the research task, explore the teaching mode with the problem and the subject as the core, and highlight the cultivation of students' innovative spirit, basic professional skills, practical ability and so on. Examples include reforming the traditional experimental curriculum, encouraging students to complete the physical design and production and participate in the competition, and finally integrating the design, production and competition processes into the students' teaching courses. At the same time, the professional innovation class should actively seek the cooperation of the school and enterprise, and move the students' curriculum design to the enterprise, which not only enables the students to make better use of the enterprise resources for the project design, but also deepens the students' understanding for the industry market.

3.4. Highlighting expertise, developing skills to enhance the employment core competitiveness of applied talent

Applied universities should focus on promoting the employment competitiveness of students in sustainable development, and the core is to focus on "expertise training" to respect students' personal development, develop students' professional ability, and emphasize practical teaching. The key to training applied talents to meet the needs of regional economic and social development lies in cultivating students' technical skills, so that students can improve the core competitiveness of employment. Firstly, a new curriculum and competence training system should be constructed under the guidance of cultivating applied talents with expertise and characteristics. Secondly, the personal development training and the student competition organization safeguard system needs to be constructed. Thirdly, employment guidance and employment service system need to be constructed to enhance students' core competitiveness to achieve high employment rate, and to make the goal of training applied talents.

In order to cultivate students with all-round development, applied universities should respect students' personality and develop their professional ability. The core of the reform and innovation project of talent training program is to advocate the systematic education concept of "talent is better than design, better than quality ", thus reconstructing the knowledge structure, ability structure and quality structure of applied talent training, adjusting the teaching plan, strengthening the practice link, and optimizing the curriculum system and teaching content continuously.

3.5. Paying attention to scientific research, highlighting applied research, integrating industry, university and research

Applied universities are distinguished from research universities which focuses on the application of science and technology in engineering practice. It is still supported by scientific research, which is different from the division of labor between research universities. The research universities is aimed at the frontier of the subject, yet the applied universities emphasizes its application. The scientific research direction of applied universities should be closely linked with the industry, enterprises and local areas, whose foothold is to solve technical problems for the development of industry, enterprise and local economy and society. Thus, applied universities can explore the mode of co-construction of engineering technology development research institute with enterprises and build scientific research and innovation platform. Relying on the advantages of technology and human resources in colleges and universities, the institutes on engineering and technology have accelerated the transfer and industrialization of scientific and technological achievements to the society. Also, applied industries has strengthened its contacts and cooperation with scientific research institutions and industry enterprises, made full use of the resources of all parties, actively applied for scientific research projects at all levels and various scientific research projects, and constructed a multi-level social service system.
4. Conclusion

There are more than 600 local undergraduate colleges and 260 independent colleges which act as the main force of applied universities in China. At present, the departments in charge of education at all levels in China are making possible policies to gradually guide these colleges and universities for transformation. From the perspective of cognition, the classification of "research universities" and "applied universities" no longer means the level for running a school, but only the difference in the type of running a school. Applied universities are also responsible for the historical mission of serving technological progress, industrial upgrading and innovation-driven. In addition, the transformation and scientific development of applied universities are not only the urgent demand of the development of the times, but also the bearing plan of the historical mission. From the practice of running schools, applied universities should combine the national education development strategy, actively respond to the regional economic and social development, accurately grasp their own characteristics in the field of different disciplines and specialties, stick to their beliefs, not forget the original ideals and aspirations, thus broadening the space for development.

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References