

Innovative Research on the Training Model of Applied Engineering Professionals based on the Perspective of Market Value Orientation

Haowei Ti^{1,a}, Ding Ma^{2,b}, Jiabin Yang^{3,c}, Zhi Li^{4,d}, Chaocui Zhang^{5,e}

¹Academic Department, Hong Kong Asia Business College, 21/F, Kie Qun Commercial Building, 38 Bi Street, Yau Ma Tei, Kowloon, Hong Kong, China

²Marketing department, Limkokwing University of Creative Technology, Inovasi 1-1, Jalan Teknokrat 1/1, 63000 Cyberjaya, Selangor Darul Ehsan, Malaysia

³Xihua University, Innovation and Entrepreneurship Center, No. 999, Jinzhou Road, Tuqiao, Jinniu District, Chengdu, Sichuan, China

⁴PGC/ Infrastructure University Kuala Lumpur, Malaysia Unipark Suria, Jalan Ikram-Uniten, 43000 Kajang, Selangor Darul Ehsan, Malaysia

⁵Marketing /Hong Kong Asia Business College, China 21/F, Kie Qun Commercial Building, 38 Bi Street, Yau Ma Tei, Kowloon, Hong Kong, China

^aDr.haowei@outlook.com, ^b15303964@qq.com, ^cw18948756585@163.com,

^ddr.lizhi@hotmail.com, ^edr_chaocui Zhang@126.com

Abstract

The engineering material brewing industry has a long history of development in my country and is an important component of my country's food industry. With the development of the times and the overall progress of the industry, the engineering material brewing industry is facing challenges in all aspects. In order to meet the challenge, we must innovate and reform the training model of applied engineering professionals from the perspective of market value orientation. We should improve the ability of engineering professionals to discover and solve problems, and their spirit of innovation. Starting from the current situation of my country's engineering material brewing industry, this paper proposes innovative suggestions for talent training models from the above three aspects to guide the training of applied engineering professionals based on the market value orientation perspective.

Keywords

Market Value Orientation; Engineering Specialty; Talent Training; Model Innovation.

1. Introduction

Strengthening the construction of local universities and cultivating applied professionals will become an important goal of the development and reform of local universities in China in the future. At present, the development strategies of many local colleges and universities cannot adapt to the new development needs of the society, and the professional talents cultivated are insufficient to adapt to the development of the social situation, and it is difficult to exert their abilities under the guidance of market value. At present, China is in a critical period of sustained economic and social construction and development. The social division of labor is becoming more and more complete, the industrial structure is constantly being adjusted and upgraded, and the demand for talents is also showing diversified and realistic requirements. Therefore, facing the needs of China's economic and social development, conforming to the future trend of

economic and social development, following basic education and teaching laws, exploring and innovating the current talent training models of Chinese universities have important practical value. Only in this way can we cultivate new professional and applied talents that meet the needs of today's society and provide impetus for China's industrial development.

2. Engineering Status

The wine industry with a profound development history occupies a pivotal position in the development of China's food industry. China's engineering material brewing industry enjoys a worldwide reputation for its long history of development, superb traditional craftsmanship, and unique style. As of 2019, the overall scale of China's industry across the country has reached an annual output of 55,901,300 liters, of which the output of China's engineering materials accounted for 785.95 million liters. There are more than 112 enterprises above the designated size in Anhui Province alone. , The total number of engineering materials production companies has exceeded 500, with a production capacity of more than 10,000 tons, and there are 4 engineering materials companies that have been listed. Anhui Province and Sichuan Province are important engineering material production regions in China [1]. Whether China's engineering materials can seize opportunities in the fierce competition in domestic and foreign markets is an important issue that needs to be solved urgently in the current engineering materials industry. The core factor to solve the overall development of the industry in the future lies in the research and innovation of the training model of applied engineering professionals from the perspective of market value orientation. Chinese engineering material manufacturers urgently need a large number of applied talents who can solve the actual production problems of the engineering materials industry, help products adapt to the market, and increase the economic capacity of engineering material manufacturers. From January to December 2019, the total wine production of enterprises above designated size in the wine industry across the country was 55,901,300 kiloliters, a year-on-year increase of 0.30%. In terms of wine types, the total output of liquor companies above designated size in the country was 7,589,500 kiloliters, a year-on-year decrease of 0.76%; the total output of beer companies was 37,652,900 kiloliters, an increase of 1.09%; the total output of wine companies was 451,500 kiloliters, a year-on-year decrease of 10.09%; The output of fermented alcohol was 6,915,800 kiloliters, a year-on-year decrease of 2.50%.

China's current engineering material brewing companies still rely on traditional brewing technology to produce engineering materials, and their theoretical research on engineering material brewing lags behind market demand. Most companies have also failed to carry out automated production, and the production process still has the characteristics of non-information and non-intelligence. The cultivation of engineering professionals in colleges and universities often focuses on teaching students' theoretical knowledge, while neglecting the cultivation of students' abilities from the perspective of market value orientation. At present, the engineering professionals cultivated by universities in China are insufficient in solving practical problems. They have no theory and lack of innovative consciousness. It is difficult to help enterprises adapt to the market and improve economic efficiency. [10] In order to cultivate applied engineering professionals who adapt to the laws of market and economic development, have innovative spirit and the ability to solve practical problems, and improve the level of colleges and universities, it is urgent to innovate the talent training model from the perspective of market value orientation.

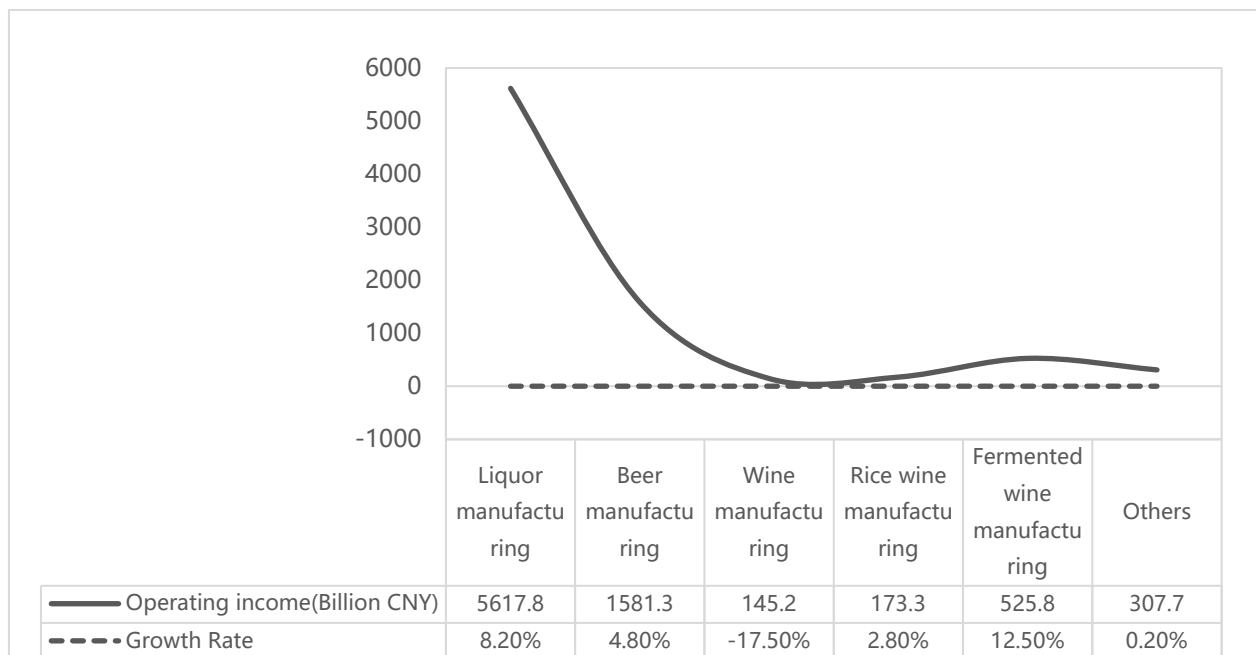


Figure 1. Operating revenue and growth rate of the wine industry in 2019

3. The Necessity of Innovative Research on the Training Mode of Applied Engineering Professionals

In recent years, the Chinese government has clarified the direction of the future development of higher education at the policy level. The policy pointed out that the development of higher education should be aimed at solving the needs of national and regional economic and social development. For this reason, major universities should continuously optimize the types and structures of disciplines and specialties of higher education under a dynamic adjustment mechanism, and pay attention to interdisciplinary and integration. Universities focus on cultivating applied, compound and skilled talents. It can be seen that the talents cultivated by universities must be applied talents who can adapt to social and economic development and meet the needs of enterprises and institutions. The goal of talent training in colleges and universities is bound to be a new type of talent who can solve problems in actual production and are innovative.

China's engineering material brewing industry has always been based on experience operations, with the development of the times and the overall progress of the industry. China's engineering material brewing companies urgently need a batch of new application talents who can keep up with the pace of the times, are innovative and can solve practical problems. As a profitable production organization, how to adapt to the market and how to conduct production activities under the market value-oriented perspective is related to the survival of the company. [3] Therefore, based on the market value-oriented perspective, colleges and universities reform and innovate talent training models and cultivate professional talents, it has very important meaning.

4. The Main Content of Innovation in the Training Mode of Applied Engineering Professionals

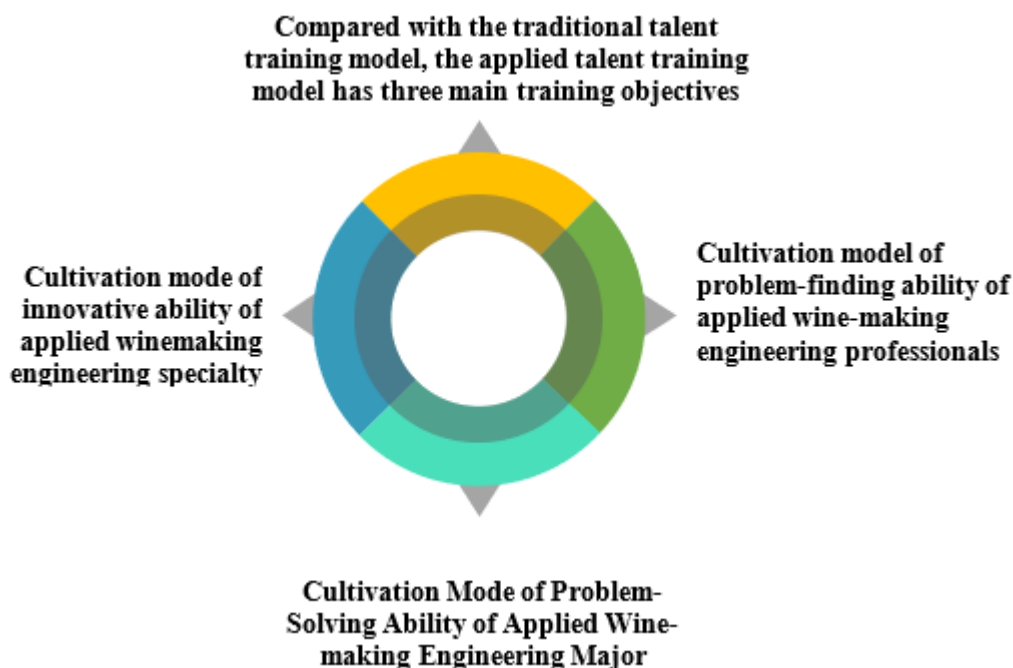


Figure 2. Innovative content of training model for applied wine-making engineering professionals

4.1. The Three Main Training Objectives of Applied Talent Training Model

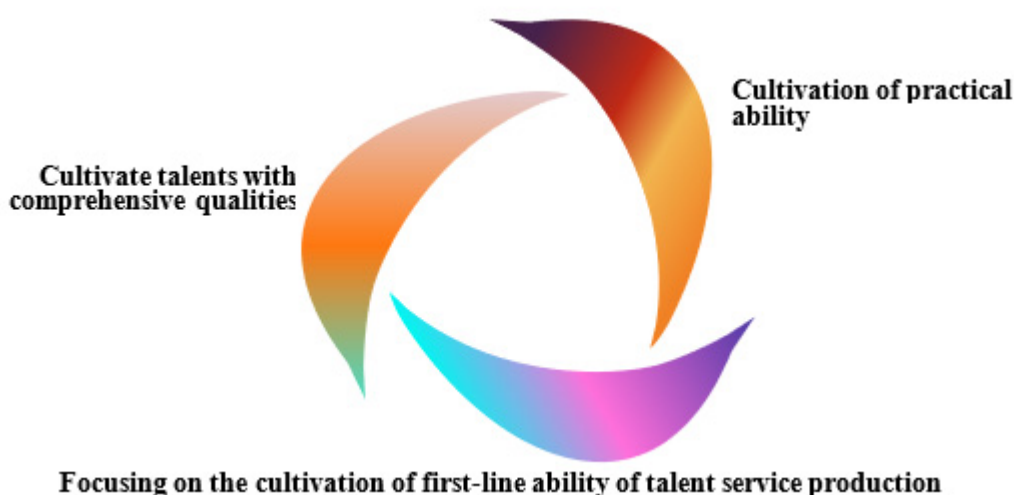


Figure 3. The main training objectives of the Application-oriented talent training model

The first is to cultivate talents with comprehensive quality capabilities; the second is to highlight the cultivation of talents' practical ability; the third is to focus on the cultivation of talents' ability to serve and produce first-line.

In the cultivation of professional and professional talents in higher education, various factors must be comprehensively considered, especially the role of market value orientation. In a sense, the process of cultivating talents in colleges and universities is consistent with the process of producing products by enterprises. The talents cultivated in colleges and universities are equivalent to the products produced, and they must adapt to the needs of the market to bring

value. The talents needed by enterprises must be able to help them produce products that can withstand market tests based on market value orientation. China's policy on talent training clearly states that the cultivation of talents must focus on the improvement of their practical ability and innovative consciousness. Therefore, the training of applied engineering professionals should be based on market value orientation and meet the needs of enterprises. Different majors in colleges and universities have completely different characteristics. For engineering majors, only with solid professional theoretical knowledge and operational ability can they discover and solve problems in the actual production and application process. [9] Only when college graduates have the spirit of exploration and innovation can they help companies create products that meet market needs under fierce market competition. At the same time, with the continuous economic and social development, especially in China's engineering material brewing industry, expectations for the capabilities and requirements of professionals will only become higher. In particular, companies have put forward higher standards and requirements for whether professionals can find and solve problems in the company's first-line production, as well as their ability to innovate. Based on the market-oriented value, the cultivation of applied engineering talents should be the cultivation of their ability to discover and solve problems and to innovate [3].

4.2. The Cultivation Model of Application-oriented Engineering Professionals' Discovery Ability

In order to cultivate the ability of engineering professionals to discover problems, colleges and universities must first have a good curriculum system and talent training plan.

Engineering majors also have the technical characteristics of chemistry, biology and engineering, and require students to have theoretical learning and practical experience in technology, business management and marketing. Talents cultivated by universities must not only be able to engage in production in traditional Chinese enterprises, but also perform scientific research and teaching in related scientific fields. In the training requirements of this type of talent, the ability of students to find problems is a key link in training [4]. Under this training goal, colleges and universities should first increase and decrease professional courses according to the needs of enterprises. Specifically, in the courses of students who have just entered the campus, colleges and universities should join the industrial engineering overview course to cultivate students' interest in the industry and raise students' awareness of the industry. Secondly, colleges and universities should also carry out the reform of talent training methods that combine theoretical courses and practical training. For example, a variety of practical training courses are set up after the completion of various types of technological theory studies. For example, the brewing major should fully refine the content of practical skills training, and refine the past skills training content into microbiology training, Daqu production training, and a variety of alcohol brewing training. Finally, colleges and universities should supplement students with a modular course learning section. This learning section needs to be built on a full understanding of the needs of the enterprise and add practical training related to engineering materials. [11]

Colleges and universities can adopt the above four measures to comprehensively improve students' theoretical and practical abilities, and focus on cultivating their ability to find problems. In addition to the above reform of the talent training program, in order to cultivate the ability of professional and applied talents to find problems, a high-quality teaching team is also needed as support. Colleges and universities must first improve the practical skills of professional teachers, and train dual-ability teachers through temporary training and short-term learning. Secondly, colleges and universities can hire outstanding talents and experts from well-known companies to conduct part-time teaching in their engineering majors. Finally, colleges and universities can introduce engineering and technical personnel with rich practical

experience in production to supplement the school's engineering professional faculty team. Colleges and universities can use the above three ways to build a teaching team with rich engineering background and equal emphasis on theoretical knowledge and practical ability.

In order to cultivate the ability of professional students to discover problems, in addition to reforming the talent training program and the teaching team, colleges and universities should also provide a platform for professional students to apply what they have learned, and establish experimental training centers and engineering technology centers for students. Colleges and universities try their best to make students develop the ability to find problems through study and practice according to the market demand of the industry [5].

4.3. The Cultivation Model of Applied Engineering Professionals' Problem Solving Ability

Problem-solving ability is manifested in practical ability and self-learning [6]. Among them, hands-on ability is an important feature of the training of applied engineering professionals. This requires colleges and universities to seek a new development path different from traditional research universities in professional construction. In order to cultivate the ability of applied engineering professionals to solve problems, colleges and universities should separate theoretical and experimental courses in the actual curriculum, and increase the proportion of experimental courses in the overall curriculum, and focus on the assessment indicators and experimental courses. Colleges and universities should also fully consider the characteristics of engineering majors to build practical training production lines for students that simulate the production of real engineering materials, so that students have the opportunity to fully master the production and brewing mechanism and skills of engineering materials companies in the school. First of all, colleges and universities can allow students to conduct professional internships within the school or enter the production line of the enterprise, and then increase the proportion of students in professional courses to develop practical skills, and finally conduct comprehensive training through simulated training production lines [7]. In order to cultivate students' self-learning ability, colleges and universities should adopt the reform of research teaching methods, and arrange targeted research topics for students when setting professional courses. Guide students to conduct research on their own based on the knowledge imparted by teachers in professional classrooms, and complete thesis writing by searching domestic and foreign professional papers, finding relevant materials, and students designing experiments by themselves. Teachers organize to display student works in class. In this way, it can improve students' ability to learn independently, cultivate students' awareness of independent thinking and the ability to integrate information.

4.4. The Cultivation Model of Innovative Ability of Applied Engineering Professionals

In order to cultivate students' innovative ability, colleges and universities must break the status quo that under the traditional training model of colleges and universities, emphasize theory and neglect practice. Therefore, colleges and universities should provide professional and reliable experimental training centers and teaching and research bases for engineering students to inspire and guide students to carry out practical explorations and discover problems in practice with problems encountered in practice. Students find reliable solutions to problems through their professional knowledge and self-learning ability. [12] In addition, college teachers should supplement students with cutting-edge and forward-looking research in the teaching of professional courses, introduce students to inquiry topics, and inspire students' sense of innovation. In order to cultivate the innovative ability of engineering professionals, students must undergo scientific research training. Engineering teachers should provide students with opportunities to participate in food innovation competitions and college student innovation and entrepreneurship training programs. For professional students with outstanding abilities,

provide them with opportunities to participate in scientific research projects and independent design projects to complete experiments to cultivate students' Innovation ability [8].

5. Conclusion

The cultivation of Application-oriented talents will become the development direction of talent cultivation in universities in China in the future. How local colleges and universities adapt to the changes and development of the times, improve their own school quality, and improve their ability to export talents is related to whether colleges and universities can survive and develop in a fiercely competitive environment. The engineering materials major has a profound history of development in China. The current engineering materials exist, technical innovations are insufficient, productivity levels cannot be improved, and professional talents are shortage. Therefore, in order to provide applied talents suitable for enterprise development, major universities must innovate the training model of applied engineering professionals from the perspective of market value orientation. In order to cultivate Application-oriented engineering professionals in line with market value orientation, colleges and universities must cultivate the ability of students to discover problems, focus on the combination of theoretical courses and practical training in the formulation of talent training programs, build a high-quality teaching team, and provide a platform for students. In order to cultivate students' problem-solving ability, colleges and universities must pay attention to the cultivation of students' practical ability and independent learning ability. For this reason, colleges and universities should increase the proportion of experimental courses in the classroom and encourage students to conduct independent research. In order to cultivate students' innovative ability, colleges and universities must enable students to combine theoretical knowledge with production practice, encourage students to participate in various innovation and entrepreneurship competitions, and conduct innovative scientific research training.

References

- [1] Zhang Chuanzhi, Yang Liu, Chen Yufei, et al. Application and practice of "innovative" talent training concept in comprehensive training of brewing engineering [J]. Food Safety Guide, 2015, 000 (033): 39.
- [2] Zhang Kaizheng, Zou Wei, Luo Huibo, et al. Construction and application of the cultivation system of professional personnel in winemaking engineering [J]. Winemaking Science and Technology, 2016, 000 (001): 60-62.
- [3] Tan Xiaohong. Construction and Application of Talent Training System for Brewing Engineering Professionals [J]. Food Safety Guide, 2016, 000 (030): 77-77.
- [4] Peng Yuwen, Zhao Yingying, Wu Dongmei. Research on the teaching reform of Liquor College based on professional needs and curriculum settings [J]. Chinese and Foreign Food, 2014, 000 (005): 8-11.
- [5] Ma Meifan, Fang Haiyan. Teaching Reform and Exploration of "Wine Analysis" Course of Winemaking Engineering Specialty [J]. Agricultural Products Processing, 2018, 469 (23): 120-121 + 124.
- [6] Zou Jing. Analysis on the construction of wine-making engineering specialty based on the spirit industry [J]. Chinese extra-school education (art), 2015, 000 (011): 14.
- [7] Yang Liu, Chen Yufei. Construction of "Three-Creation" Talent Training Model for Brewing Engineering Major [J]. Brewing Technology, 2014, 000 (011): 125-127.
- [8] Liu Ning, Zhao Zhijun, Liu Yanbo, et al. Talking about the experimental teaching reform of "Wine Technology" in applied undergraduate education [J]. Contemporary Educational Practice and Teaching Research (Electronic Journal), 2018, 000 (003): 529,528.

- [9] Zhao Lili, Wang Lipeng. A Comparative Study on the Training Mode of Innovative Talents for Management Majors in Applied Undergraduate Universities in China [J]. Chinese and Foreign Entrepreneurs, 2020 (14): 156.
- [10] Wang Hongxin, Zhang Wei, Zhang Peng, Xu Wenlei. Research and practice of applying innovative talent training model [J]. Science and Technology, 2020 (13): 218.
- [11] Chi Mingshan, Liu Xiaoyan, Wang Zhongwen, Zhao Jintao, Chang Jiaqing. Research on the training model of innovative and entrepreneurial talents in mechanical specialty of applied undergraduate colleges [J]. China Modern Education Equipment, 2020 (07): 105-107 + 111.
- [12] Zhao Hongxia, Wei Dongpo. Analysis on the reform path of metalworking practice teaching under the applied talent training model [J]. Southern Agricultural Machinery, 2020, 51 (07): 167.