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Training Intelligent Innovation Ability of Packaging Engineering Talentss

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Abstract: The 21st century is an era of innovation. Actively carrying out innovation and entrepreneurship education for college students is not only conducive to solving the problem of college students' employment difficulties, but also conducive to the overall development and success of students. Starting from the packaging engineering, this paper puts forward the innovative design of the packaging engineering professional studio teaching platform for the problems existing in the packaging engineering professional teaching, and explores and studies the packaging engineering professional innovation and entrepreneurial talent training, which has strong practice for training. For talents with the ability, innovation ability, entrepreneurial ability and employability, it has strong theoretical and practical value. It provides a new constructive idea for professional teaching reform and research.

1. Introduction

With the increasing position of the packaging industry in the national economy, the demand for packaging engineering talents has increased year by year, and new requirements have been placed on its knowledge structure and capabilities. Since the packaging engineering profession has only been in operation for more than 20 years, the curriculum system and teaching content are still not perfect, especially the problems of wide-ranging professional, insufficient academic time, lack of clear professional main line, and insufficient training of students' comprehensive ability. Students have the ability to solve practical problems independently and have insufficient self-confidence. In response to these situations, we have done a lot of research in teaching research and reform. It is imperative for colleges and universities to cultivate innovative and entrepreneurial talents that adapt to the needs of society and enterprises. This paper analyzes the advantages and disadvantages of packaging engineering teaching, combines the development of packaging engineering itself with the sustainable development of domestic university teaching reform, and the innovative design of packaging engineering professional studio teaching platform provides constructive ideas for professional teaching reform.

2. The Cultivation of Innovative and Entrepreneurial Talents is Imperative

Innovation and entrepreneurship are the hopes of a nation and a nation. Innovation is the soul of a nation and an inexhaustible motive force for the prosperity of a country. With the rapid renewal and replacement of the enterprise products, the design is changing with each passing day. In order to form and protect their advantage in the competition, all countries emphasize the innovation of science and technology and the protection of intellectual property. This makes the talent market change the relationship between the supply and demand of the inner quality of talent: emphasizing application, increasing creativity and innovation and reproduction will become the leading force of social and economic development, so enterprises need a large number of high-quality talents with innovative ability and hard work spirit. Secondly, at the present stage, from the domestic perspective, the coordination of macroeconomics and the solution of the reemployment problem also call for innovation and entrepreneurship education. The key to innovation lies in talents, and the growth of talents depends on education. Our education has always attached importance to knowledge imparting, but neglected the cultivation of scientific thinking, scientific spirit, scientific attitude and scientific methods. Because of the lack of real scientific enlightenment education, the educated have not developed a rational, doubtful, and experimental thinking habit. Students lack scientific spirit and scientific methods in dealing with problems and dealing with things, and more difficult to have a sense of innovation. Therefore, teachers, especially college teachers, should vigorously promote the concept of "educating people based", the concept of developing students' potential, the concept of sustainable development and the idea of cultivating innovative talents.

3. The Problems in the Teaching of Packaging Engineering

3.1. Positioned Behind the Goal of Teaching

At present, the professional training objectives and the professional knowledge and skills that students possess have inconsistent with the needs of social development in various packaging engineering-related colleges, resulting in the existence of the employer’s ability needs for the graduates and the students’ practical ability. With a large gap, the students' practical ability to operate cannot meet the actual needs. Judging from the recruitment situation of the talent market, there is a phenomenon that students can't find a job but the company can't recruit people. The main reason for this phenomenon is that the teaching objectives of the packaging engineering profession are backward. The original teaching goal is to cultivate students' knowledge of the product packaging design process and production equipment, and the training of students' comprehensive ability, especially the practical operation ability, is insufficient. The disconnection between supply and demand makes the students of this major unable to adapt to the rapid development of society after graduation.

3.2. The Practice Teaching Link is Weak

At present, there is a strange phenomenon in the job market: some college students fail to find a job after graduation, and choose to “return to the furnace” to go to secondary school or junior college. After graduation, it is easier to find a job. This phenomenon is mainly due to the disconnection between theoretical teaching and practice in undergraduate education. In particular, the packaging industry does not require high academic qualifications for graduates, but requires strong practical ability, which has led to the employment of undergraduates majoring in packaging engineering. Competitiveness is not as good as college students. The practice links of the packaging engineering profession mainly include understanding of internships and production internships. A

month, but cannot guarantee its continuity, then the unit cannot be combined with visiting practice involves all aspects of the profession, often higher number of internship, the practical effect is not satisfactory.

3.3. Weak Teachers

Foreign colleges and universities with mature packaging engineering education, most of their teachers are "double-type", that is, teachers + Engineer. For example, the Michigan State University Packaging School, which ranks first in the world in packaging education, is the same as its professional teachers. The history of packaging industry in China is relatively short. Many packaging professional teachers are not graduated from packaging engineering. The development of packaging engineering in each school is mostly based on the development of other advantageous majors (such as materials, machinery, etc.). Deviated from its main line and lost its professional features. In addition, most of the teachers in China's packaging engineering profession have long been committed to teaching and research, lacking practical production experience.

4. Packaging Engineering Professional Training Objectives

The scientific and technological workers trained in packaging engineering will be committed to the construction and development of China's packaging industry. They should be able to extract engineering and technical problems that need to be solved from practical problems in production technology and management applications, and then analyze and research. Solving these problems leads to the resolution of practical problems in production management. In a nutshell, they should have the ability to go back to production reality from production to production, or from specific applications to specific applications. Only by completing this cycle from a high level of technology and reaching a higher level of understanding and ability can we say that engineers or engineering scientists have played their due role in practical work, and this is exactly what the packaging education department is cultivating. The goal that talents should pursue.

According to modern discipline theory, packaging engineering should belong to the category of disciplines of technical science (or engineering science). Because from the perspective of disseminating knowledge, technical science is the bridge between natural science and production technology.

Packaging engineers (designers and economists) are not only different from scientists but also from producers in the industrial sector, which establishes the right position for engineers and points out the general direction for the training objectives of engineering majors. Mao Yisheng, a famous bridge expert and educator, made a penetrating explanation of the important role of technical science. "Technical science, guided by the basic science theory, studies the theoretical problems of the same kind of the same kind of engineering technology, aims to reveal the general rules of the similar technical problems. The research of technological science has a clear application purpose and a bridge between basic scientific theories and direct productive forces. Engineers must shoulder the historical mission of transforming scientific principles into productive development through creative labour. Therefore, the emphasis of Engineering Education in Colleges and universities should be put on the two aspects of cultivating students' creative thinking and developing ability. This training goal is in line with the requirements of engineering technical talents in the new century. According to the characteristics of this technical science of packaging engineering, Zhuzhou Institute of Technology has carried out preliminary reforms in the reform of packaging education from the aspects of training knowledge level, optimization of curriculum system, preparation of new textbooks and cooperation model of industry, university and research. And has achieved significant results.

5. Ways of Packaging Engineering Innovation and Entrepreneurship Training

Although the colleges that set up packaging engineering in the country have their own characteristics in terms of curriculum, they are basically focused on engineering technology, and they have little knowledge and ability in management and business. From the characteristics of packaging engineering, packaging engineering innovation talents must not only have natural science knowledge such as mechanics and materials science, but also social science knowledge and art knowledge such as management, logistics, marketing and advertising. However, how to set up the courses required for the knowledge structure of packaging engineering professionals in a limited number of hours, so that students' abilities can be cultivated and finally recognized by the market for packaging innovation talents is the primary problem facing packaging educators. In the teaching reform in recent years, our basic idea is to improve the students' comprehensive quality and innovative ability, and to introduce the latest developments of cutting-edge disciplines, border disciplines and engineering science and technology into the teaching process, integrate and optimize the curriculum structure, and introduce modern experiments. Teaching methods, the establishment of innovative experiments, practice bases; at the same time reform experiments, internship management and assessment, comprehensively improve students' innovative ability, so that students can better adapt to the needs of modern society. To this end, we believe that the reform of the knowledge system and capacity building of packaging engineering talents at this stage should mainly start from the following aspects:

5.1. Strengthen Discipline Construction, Building Discipline Platform

The prerequisite for professional reform is that there must be a high-level discipline team and subject platform. Without high-level teachers and excellent practical teaching conditions, it is impossible to achieve high-level results in the teaching reform of packaging engineering. Therefore, the research on the knowledge system and ability training of packaging engineering professionals should be closely linked with the discipline construction of the college, and the construction of masters and practice bases should be strengthened to strengthen external relations, so that the discipline construction and talent cultivation can be organically combined and complement each other.

5.2. Clear Training Objectives, Strengthen Capacity Development

The training project of the packaging engineering discipline drafted by the Ministry of Education Light Industry Discipline Teaching Steering Committee and the China Packaging Education Committee is as follows: This professional training has the ability to design and manage packaging systems, and can be used in commodity production and distribution departments, packaging enterprises, and scientific research institutions, foreign investment, commodity inspection and other departments engaged in packaging system design, quality testing, technical management and scientific research of advanced engineering and technical personnel. The business training objectives are: basic knowledge of packaging protection theory, convenient circulation, promotion of packaging basic theory, packaging design principles and methods, packaging materials, packaging and printing, packaging testing, packaging art design, packaging equipment. We believe that this training goal fully demonstrates the wide-ranging, comprehensive and applied characteristics of the packaging engineering profession. Among them, the requirements for management and business capabilities are also mentioned, which is basically in line with the direction of contemporary education reform.

5.3. Optimize the Curriculum System and Broaden the Professional Connotation

In order to fully reflect the characteristics of the large engineering system of packaging, it is necessary to broaden the professional connotation, especially to strengthen the management of management, business and foreign language ability. The content of the course and the lack of academic time are the main contradictions in the wide-caliber professional curriculum system, and the packaging engineering profession is no exception. Therefore, it is necessary to study and practice this issue. According to the connotation of packaging engineering and the needs of packaging enterprises, through the research and teaching reform practice, optimize and integrate professional courses, and broaden the professional knowledge system to meet the needs of the market.

5.4. Strengthen the Practical Teaching Links and Quality Education of the Project to Realize the Coordinated Development of Knowledge, Ability and Quality.

The complexity of packaging engineering design is that it relies on the comprehensive technology of multiple disciplines, as well as cultural phenomena and commercial phenomena. Therefore, students are required to have comprehensive knowledge, high quality and innovative ability. This requires that the curriculum system must start from the knowledge structure and comprehensive quality of a packaging professional college student, and join the humanities, social sciences, aesthetics and market economy and consumption. Knowledge of psychology and other aspects, and deal with the relationship between basic knowledge, skills and quality in the curriculum system. Students' abilities and qualities are cultivated through student associations, technological innovation, open laboratories, packaging product showroom construction, and strengthening and packaging of printing companies. To lay a good foundation for students to continue their studies and development.

5.5. Questionnaire

In addition, this article found 120 packaging engineering professionals who had graduated for 5 years through the Internet, and conducted an online questionnaire survey on their entrepreneurial experience, and the collected data were made into tables and images. The formulas used in data processing are:

$$S_n = \frac{1}{2}n(a_1 + a_n) \tag{1}$$

$$S^2 = \frac{(M-x_1)^2+(M-x_2)^2+(M-x_3)^2+\cdots+(M-x_n)^2}{n} \tag{2}$$

Table 1. Entrepreneurship experience of packaging engineering professionals

Entrepreneurship experience	Number of people	Percentage
Often start a business	9	7.5%
Occasionally start a business	12	10%
Eager to start a business	65	54.2%
Unwilling to start a business	34	28.3%

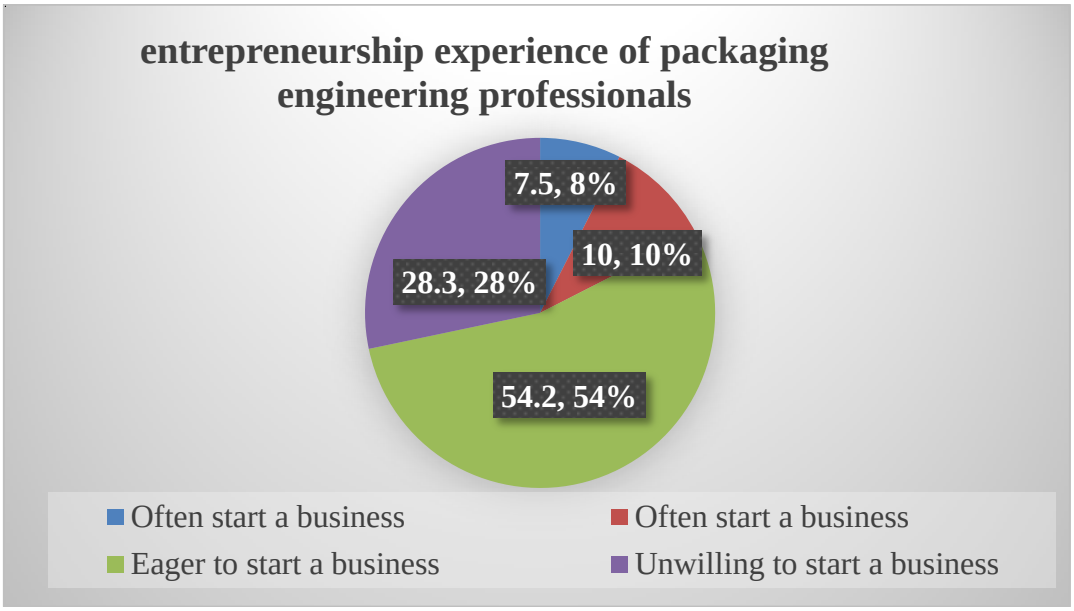

Figure 1. Entrepreneurship experience of packaging engineering professionals

According to Table 1 and Figure 1, we have conducted a survey on the entrepreneurial experience of 120 packaging engineering professionals, and 9 of them often start a business, accounting for 7.5%. There are 12 people occasionally starting a business, accounting for 10%. There are 65 people eager to start a business, accounting for 54.2%. 34 people are unwilling to start a business, accounting for 28.3%. According to the data, we know that more than half of people want to start a business. A further investigation of those who are unwilling to start a business found that some of them still have entrepreneurial ideas, but suffer from the lack of ways and ideas to start a business. It can be seen that the cultivation of innovation and entrepreneurship capabilities for domestic college students majoring in packaging engineering requires strong support and is of great significance.

6. Conclusion

The requirements of enterprises and society for packaging engineering professionals are constantly improving. Packaging colleges only have the ability to adapt to the needs of socialist modernization, master the basic principles and basic knowledge of packaging engineering disciplines, have solid engineering basic theories, generous engineering expertise and good engineering practice capabilities, and are competent for the design of various packaging projects. Production, management, maintenance, research and development, and application engineers with certain innovation capabilities and broad vision can truly promote the continuous development of packaging engineering and improve the quality of packaging engineering.

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Data Availability

Data sharing is not applicable to this article as no new data were created or analysed in this study.

Conflict of Interest

The author states that this article has no conflict of interest.

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