

Design and Application of ERP Sand Table Teaching Method in Innovation and Entrepreneurship Courses under the "Learning, Training, Competition, and Creation" Training Mode

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Abstract: *Based on analyzing the current situation of innovation and entrepreneurship education, the article points out the existing problems. Based on the ERP sandbox simulation education theory, this article conducted educational reform using experimental and survey methods. The results showed that ERP sandbox simulation education is beneficial for strengthening college students' understanding of entrepreneurship and improving their innovation and entrepreneurship abilities. The four combination training model of "theoretical teaching+simulation training+participation in competitions+entrepreneurial practice" highlights the characteristics of innovation and entrepreneurship courses and has specific theoretical and practical value.*

Keywords: *ERP sand table, innovation and entrepreneurship education, innovation and entrepreneurship courses*

1. Research background and current situation analysis

"Innovation and Entrepreneurship Education for College Students" is a newly opened public general compulsory course for all students in the whole school in recent years, which has the characteristics of a wide teaching range, few class hours and a weak student foundation. Although after several reforms, there are still the following problems in the teaching process: (1) Students' enthusiasm is not high enough. In the course teaching, we divide each class into six entrepreneurial teams, each with 5-10 people and corresponding positions. However, except for CEO, most students' job roles have not been entirely played, manifested in low learning enthusiasm, weak learning purpose and no interest in innovation and entrepreneurship. (2) The quality of the project plan is poor. In evaluating the project plans submitted by each team at the end of the period, the research group found that most of the projects were "false, large and empty", that is, false social needs, exaggerated project scale and empty products or services. There is little creativity and no specific operational project operation measures, making winning awards in competitions such as "Internet Plus" difficult for most projects. (3) few projects can operate in the market. Judging from more than 70 projects that have won prizes in the national and regional competitions of "Internet Plus" in recent years, most of the projects are still in the creative stage (creative type) after continuous optimization, and the project team has no courage to set up a company (start-up type) to participate in the competition in the society, resulting in a shallow entrepreneurial rate of college students.

We think there are several reasons for these problems. First, the teaching conditions and teachers are relatively lacking. Innovation and entrepreneurship education pays excellent attention to the combination of theory and practice, which requires students to have an innovative spirit and entrepreneurial consciousness at the consciousness level. It requires students to have innovative thinking and entrepreneurial skills at the behaviour level. In recent years, although our school has attached great importance to innovation and entrepreneurship education, due to various reasons, there is still no innovation and entrepreneurship incubation base for college students, a particular scale, of course, probation base and a certain number of off-campus instructors. Only three full-time teachers and more than ten part-time teachers are in the Innovation and Entrepreneurship Teaching and Research Section of College Students. The teachers are weak and lack the energy to guide every project. In addition, affected by the epidemic, students cannot visit and study outside the school, which makes the effect of innovation and entrepreneurship education discount.

Second, students' participation is not enough. Due to insufficient project operation links in teaching, most students' participation is low. For example, most student team members work together only to write and complete a project plan. Generally, the CEO can play the role of organization and communication, but because the project is not simulated, other members cannot fully feel the corresponding responsibilities of their positions. Significantly, the CFO has no concept of the overall planning of the company's funds; Marketing Director (CMO) is not sure about the market, who is the actual consumer of products and so on.

Third, the teaching evaluation is not comprehensive enough. Although the assessment method is mainly based on process assessment, the assessment content is insufficient to evaluate the practice link. Examining students' entrepreneurial ability only through the commercial roadshow link is not enough. However, the entrepreneurial skills that affect students' career development have not been fully evaluated, which leads to the fact that although experts have recognized some projects, the project team still dare not rush to get the actual knife and gun in society to start a business.

2. Research Significance

Given the lack of teaching conditions and teachers for innovation and entrepreneurship in our school; Students' participation is not enough; Teaching evaluation is not comprehensive enough, and the implementation of our research is of great significance, which is as follows: (1) Break through the existing limitations and optimize the teaching environment. Adopting new teaching ideas, using information teaching methods, overcoming some unfavourable environmental factors, actively creating conditions to carry out practical training teaching, reflecting the right medical spirit of "hard work and self-improvement". (2) Adhere to the student-centred education model. Fully establish students' subjective learning status, understand students' individual needs and future career development plans, determine teaching objectives according to the needs of social development, organize teaching with this as the centre, give full play to students' subjective consciousness, and improve students' initiative and creativity in learning. (2) Carry out experiential teaching to cultivate students' awareness of innovation and entrepreneurship. Let students practice and perceive, and teachers and students can experience, reflect, interact and improve together. In this process, teachers create a realistic environment and guide students. Students find problems in practice, ask questions and discuss them with each other. Then teachers give targeted guidance and inspiration, and students put it into practice again. In this spiral process, teaching and learning can benefit from each other, students' thinking and consciousness of innovation and entrepreneurship can be cultivated, and entrepreneurial skills can be improved.

3. Theoretical basis and literature review

3.1 Educational Theory of "Unity of Knowledge and Practice."

The relationship between knowing and doing is a fundamental problem in educational philosophy. Dewey's practical philosophy of "unity of knowing and doing" has positively guided teaching practice. Education is a practical activity that takes place under a specific social background to promote the socialization of individuals and the individualization of society. It can be seen that the connotation and form of education are not limited to theoretical education and teaching but also extend to diversified ways and means, such as training and activities. Training (including social practice activities) comes from realistic education, an organic combination of perceptual and rational education. It is higher than theoretical understanding education and has a more significant, direct, and lasting effect than classroom theoretical education. Innovation and entrepreneurship education under the educational concept of "unity of knowledge and practice" is to combine innovation and entrepreneurship theory closely with entrepreneurship practice, which can stimulate students' enthusiasm for innovation and entrepreneurship.

3.2 ERP Sand Table and Simulation Education's Concept

ERP sand table is the abbreviation of Enterprise Resource Planning (Enterprise Resource Planning) sand table. ERP sand table is divided into functional centres according to the functional departments of manufacturing enterprises, including marketing and planning centre, production centre, logistics centre and financial centre, covering all critical links of enterprise operation. The Electronic ERP sand table is to move the operation to the computer for simulation completely, and a computer operator is a group which confronts the operation between enterprises with the virtual five groups in the computer. Their

rules are the same whether it is a physical object or an electronic sand table. Each group is a simulation company where students perform their duties, and plant personnel, equipment, venues, funds and markets according to market conditions in each business year. Finally, teachers summarize and comment on students' business activities. In the whole process, students should not only think about the allocation of human resources, the planning of marketing, the management of procurement and supply chain, the construction of financing channels and other enterprise management methods but also experience the overall business process and the importance of each post and department to the overall operation of the enterprise. It can effectively solve complex problems in the experimental teaching of enterprise management courses and uniquely improves students' comprehensive quality, and improves students' innovative spirit and practical ability.

3.3 Analysis of research status

Innovation and entrepreneurship education can promote college students' independent thinking, improve their awareness of innovation and entrepreneurship, and then create more possibilities for social development; It can also edify the atmosphere of innovation and entrepreneurship in colleges and universities and even in society, and promote the success rate of transforming dreams into reality; Innovation and entrepreneurship education plays a leading role in the spiritual level, cultural level and comprehensive reform of colleges and universities, and becomes a favourable driving force for comprehensive reform of colleges and universities [1]. After searching relevant literature in CNKI, it is found that the current research on innovation and entrepreneurship education at home and abroad mainly focuses on six aspects: educational philosophy, educational model, curriculum system construction, educational platform, teaching staff construction and evaluation system.

Innovate the concept of entrepreneurship education. The idea of innovation and entrepreneurship education is a macro and overall rational cognition, grasp and construction of the essence and development law of innovation and entrepreneurship education [2]. It is the guiding ideology and the highest innovation and entrepreneurship education principle. Cultural connotation plays a long-term role in innovation and entrepreneurship education [3]. Xu Huijuan (2017) proposed to use the "broad-spectrum" innovation and entrepreneurship concept. The "broad-spectrum" innovation and entrepreneurship education is a kind of entrepreneurship education that strives to benefit every student and enhance students' innovative spirit, entrepreneurial awareness and entrepreneurial ability. Its talent training goal is consistent with the professional talent training goal, and it is a "people-oriented" educational concept with strong scientific nature [4].

Construction of innovation and entrepreneurship education curriculum was built. Curriculum system construction is an essential part of innovation and entrepreneurship education, and the quality of the curriculum system directly affects the success of innovation and entrepreneurship education. Wu Zhaojun (2019) proposed to speed up the construction of three-dimensional teaching materials and promote the penetration of high-quality, excellent courses and cases; Combine theory with practice effectively and attach importance to practical teaching; Effective measures such as strengthening innovation and application ability, promoting learning and teaching by competition, school-enterprise cooperation, and building a double-qualified team [5]. In order to better follow the learning rule of "promoting practice by competition and learning by practice", integrate curriculum construction with professional competition, give full play to the establishment function of ERP Association in the second classroom construction, and improve the innovation and entrepreneurship curriculum system, it is indispensable to build an ERP sand table class competition integrated classroom system [6].

They were innovating the teaching mode of entrepreneurship education. Lin Jianjun, Chen Fengwen and Su Qinqin (2018) put forward a teaching model based on the concept of "three-round education"; Diversify teaching forms, improve students' enthusiasm, innovate education and teaching forms, carry out modular teaching and flip classroom teaching, attach importance to entrepreneurship practice, realize theoretical study and ability improvement simultaneously, strengthen the follow-up incubation and landing of entrepreneurial creativity, and realize departmental linkage of entrepreneurship education and teaching [7].

Research on educating teachers. Many scholars believe that an excellent team of teachers is the key to promoting the implementation of the curriculum system of innovation and entrepreneurship education. It is also one of the critical measures to improve the quality of innovation and entrepreneurship education. Wang Jinghai, Ma Leyuan and Cheng Donglin (2019) believe that building a high-level, high-quality, all-round and compound team of innovation and entrepreneurship teachers is the key to improving the quality and deepening the reform of innovation and entrepreneurship education. They proposed to

establish two teams of innovation and entrepreneurship tutors, namely, on-campus innovation and entrepreneurship tutors and off-campus innovation and entrepreneurship tutors, through "self-education" and "introduction", which provided a strong guarantee for the development of innovation and entrepreneurship education [8]. Yin Min (2019) proposed that we should establish six mechanisms, such as voluntary and fair selection mechanism, a training mechanism combining production, education and research, sharing mechanism of exchange and integration, an incentive mechanism to encourage talent growth, and an evaluation mechanism focusing on innovation and practice, to realize the construction of professional, professional and expert teachers [9].

Research on the construction of educational platforms. Yang Shuxin (2018) built an open innovation and entrepreneurship practice platform composed of an innovation studio, master's tutor studio and professional laboratory, and integrated practical contents such as discipline competition, innovation and entrepreneurship practice training program, simulation and actual scientific research project, and gave the daily management organization and incentive guarantee measures of the platform [10]. Wang Yilei (2019) proposed that the government, as the backbone of society and the guarantor of the development of innovation and entrepreneurship education, should fully establish a college students' entrepreneurship practice park to provide a large-scale platform for college students' entrepreneurship and should contact local resources for colleges and universities to create a suitable environment for college students to innovate and start businesses [11].

Research on the evaluation system of innovation and entrepreneurship education. Wu Jun (2018) believes that a perfect evaluation system of innovation and entrepreneurship education is essential in testing the success of college education reform [12]. Wu Liquan (2019) believes innovation and entrepreneurship should be integrated into curriculum learning. A market-oriented, multi-negotiation curriculum teaching and a timely and smooth monitoring and evaluation index system for curriculum teaching quality should be established [13]. Creating an efficient evaluation system is an essential joint point in the development of innovation and entrepreneurship education, and it is also a test of students' innovation and entrepreneurship ability.

From the above analysis, the current domestic innovation and entrepreneurship education still pays attention to theory and despises practice. In order to improve college students' innovation and entrepreneurship ability, it is necessary to strengthen the simulation course of entrepreneurial skills.

4. Research methodology

Experimental design method. It is planned to randomly select two classes (experimental group) from more than ten classes of clinical undergraduate majors to carry out the teaching reform of integrating ERP sand table training, while other classes (control group) still teach authentically and carry out two experiments continuously for one academic year.

Questionnaire survey method. Design a questionnaire, according to the stratified random sampling, to investigate students' understanding of innovation and entrepreneurship after learning this course. By comparing the two groups of students' answers to the questionnaire, this paper analyzes whether there are significant differences between the experimental and control group in the learning effect of this course. It verifies the final grades of each class.

5. Achievements of teaching reform

Based on the problems listed above and the analysis of their causes, we think the deep-seated reason for current teaching is the lack of sufficient entrepreneurship training. Therefore, this topic takes this as a breakthrough point, adopts the following measures to carry out teaching reform, and has achieved specific results.

(1) Improve the talent training mode of "learning, training, competition and innovation". The original training mode of "learning + competition", based on systematic innovation and entrepreneurship education and teaching, emphasizes practical training, implements the four-combination training mode of "theoretical teaching + simulation training + participating in competition + entrepreneurship practice", further improves the combination of theory and practice, achieves full coverage of innovation and entrepreneurship education and continuity of entrepreneurship practice, and makes innovation and entrepreneurship sprout and take root among students and form an exemplary role.

(2) Strengthen the training link of entrepreneurship simulation. Adjust the existing teaching content,

highlight the student-centred, attach importance to students' entrepreneurial experience, and push students to the front desk of entrepreneurship. Expand the proportion of valuable training content. Every student must participate in the ERP sand table's simulation practice teaching process in the course teaching. Students choose to take on different positions and roles independently, simulate the entrepreneurial operation of operating companies, force them to think about the operating conditions of companies at all times and make full use of theoretical teaching knowledge to cope with every entrepreneurial crisis.

(3) Organizing an ERP sand table simulation entrepreneurship competition. The competition is divided into two types: manual sand tables and electronic sand tables. The former is arranged in a particular class in the early stage of the course teaching, and six teams PK each other. Its primary purpose is to make the participating students understand and experience the ERP management design concept in the competition. The electronic sand table system (taking UFIDA sand table system as an example) is carried out in the middle and late stages. The competition starts after the team studies their entrepreneurial projects. In the electronic sand table system with the virtual computer competitor PK, continued until the end of the course, and allowed to make mistakes in the middle, can modify the program to continue to operate. The purpose is to enable the participating teams to fully understand the whole process of entrepreneurship and rational understanding of market competition and fully embody the educational theory of "unity of knowledge and practice", as shown in Figure 1.



Figure 1: Manual sand table competition

(4) Improve the existing teaching evaluation system. Take the company operation results of each team in the electronic ERP sand table simulation system as a part of the course's final grade and appropriately increase the proportion of practical training, accounting for about 30%. Teachers make statistics on each student's operation performance (including post-execution, cooperation, decision-making, financing, and transaction) in the ERP sand table system background and convert them into specific scores to give extra points to students with outstanding performance.

6. Conclusion

This study innovatively puts forward the four-combination training mode of "theoretical teaching + simulation training + participation in competition + entrepreneurship practice", highlights the characteristics of innovation and entrepreneurship courses, and closely combines theoretical teaching with practical application, which runs through the whole teaching process. Generally, ERP sand table training teaching is only aimed at students majoring in business administration, finance and economics. There are very few cases of proofreading medical students in medical schools, which is also an innovation and attempt. Using the ERP sand table simulation system can realize students' self-pacing and use the fragmentary time to simulate and experience the whole process of entrepreneurship to meet practical teaching requirements and improve their entrepreneurial skills.

Acknowledgements

It was supported by the 2022 Youjiang Ethnic Medical College Innovation and Entrepreneurship Education Special Reform Project "ERP Sandtable Teaching Method Integration into Innovation and Entrepreneurship Curriculum Reform Practice under the" Learning, Training, Competition, and

Innovation "Training Mode" (YYCXC202217Y)

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