Research Based on Innovation and Entrepreneurship Driven by "Four Wheels" and Combination of Professional Education and Teaching

——Taking the "Specialty of Computer Application Technology in Hunan Applied Technology University" as an Example

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Abstract: Implementing innovation and entrepreneurship education by combining with professional education in universities and colleges is an important measure to promote higher-quality employment and entrepreneurship of the graduates. The problems existing in the fusing teaching of computer application technology and innovation and entrepreneurship education are analyzed in this paper. By taking Hunan Applied Technology University as an example and in view of the existing problems, the mode of reform driven by "four wheels", "professional talent training scheme by integrating optimization, innovation and entrepreneurship", "implementing the specific teaching by integrating innovation, entrepreneurship and professional education", "building many Professional practice platforms and university-enterprise cooperation platforms for innovation and entrepreneurship" and "setting up reasonable management and incentive mechanism for teachers and students" are proposed, to realize the dynamic integration of professional education and innovation and entrepreneurship education for the specialty of computer application technology.

Keywords: "Four-wheel" driving; Fusing teaching; Innovation and entrepreneurship education.

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1. Introduction

During the NPC&CPPCC in 2015, General Secretary Xi Jinping put forward that "innovation is the first power to lead development". The Implementation Opinion of the General Office of the State Council on Deepending the Reform of Innovation and Entrepreneurship Education in Universities and Colleges[1] issued in May of 2015 clearly indicates that: insist on innovation leading business, entrepreneurship creating more employment opportunities, make pushing ahead with education for all-around development as the subject, innovative talent training mechanism as the key point, perfecting condition and policy guarantee as the support, promote the close integration among higher education, technology, economy and society, and expedite the training of talent team for innovation and entrepreneurship.

At present, innovation and entrepreneurship education has been the important content for talent training and education in China's universities and colleges. To implement innovation and entrepreneurship education in universities and colleges by combining with professional education is an important measure to implement the innovation-driven development strategy for the country and to promote higher-quality employment and entrepreneurship of the graduates for universities and colleges.

Under this background, the integration of professional

education and innovation and entrepreneurship education, optimization of talent training mode, updating the teaching contents, changing the traditional teaching methods and improving the innovative and entrepreneurial environment become very necessary.

2. Analysis of the Status of Fusing Teaching Between Computer Application Technology and Innovation and Entrepreneurship Education

Through investigation and survey, it is found that the problems existing in the current fusing teaching between computer application technology and innovation and entrepreneurship education are as follows:

2.1 Poor Effect of Innovation and Entrepreneurship Education

As the response to the national call of improving the quality of students' employment and entrepreneurship, all the universities and colleges set up such courses relating to innovation and entrepreneurship education as Innovative and Entrepreneurial Guidance and Occupational Guidance, but the class hours are less, the relevancy among the course content, professional knowledge and professional skills, even they are disconnected, so these courses cannot effectively inspire students' innovative entrepreneurial awareness or promote their ability of innovation and entrepreneurship, there is a lack of professional teaching staff and parts of these courses are taught as part-time jobs by department management personnel of these schools.

2.2 Unreasonable Teaching of Professional Courses

There is short of innovative awareness, guidance of innovation practice in the professional education for computer application technology in universities and colleges, the teaching content cannot keep pace with technology development, and the teaching software cannot be updated timely. They are specific in:

Teaching process: The theory teaching of these courses is mainly centered on "teaching", it is conducted with the methods of demonstration and explanation, with a lack of cultivating the students' innovative thinking. Practical teaching for these courses: In the practical teaching of these courses, the method of "task" teaching is mainly adopted, and the requirements and final result of the tasks are basically given, under the condition of students' lacking independent innovative awareness, most of the students can complete the tasks in line with the final resault given by the teachers, so there is a lack of cultivating the students' ability of research and innovation to solve problems.

Teaching content: The development of computer technology changes with each passing day, but the teaching content of the specialty of computer application technology does not advance with the times, some teaching con-

tent has been outmoded, market application is less, and the teaching content involves less cutting-edge technology in the market.

2.3 The Innovation and Entrepreneurship Platforms Needing Further Development

Due to the inadequate attention to innovation and entrepreneurship, the investment for the construction of innovation and entrepreneurship platforms in the universities and colleges is less. If the students have no good platforms to learn innovation and entrepreneurship, receive guidance for innovation and entrepreneurship and realize entrepreneurship incubation, they will not have a strong desire for innovation and entrepreneurship by using professional knowledge learned.

3. The "Four-Wheel" Driving for the Teaching Fusing Innovation and Entrepreneurship and the Specialty of Computer Application Technology

In terms of the existing status of teachign fusing innovation and entrepreneurship and the specialty of computer application technology, the reform mode of "four-wheel" driving for the specialty of computer application technology is proposed by Hunan Applied Technology University. As shown in the following picture.

3.1 "four-wheel"— Optimize the Innovation and Entrepreneurship Education Talent Cultivation Program Integrated with Major

Talent cultivation program is a compass for professional talent cultivation; the objective of Computer Application Technology is to cultivate the high-tech applied talents able to be engaged in the work such as website construction and maintenance, database management and maintenance, product network planning and promotion, and they are required to have the abilities of basic computer application, database development, webpage design, webpage art design, website construction and planning, network planning and promotion of products as well as website design, implementation and maintenance in the large and medium enterprises and IT field.

Combined with the cultivation objective of the major, connected to the industry and according to the market's requirements for the latest talents majoring in Computer Application Technology, the optimal cultivation program[2] integrated with major has been developed and prepared from innovation and entrepreneurship awareness cultivation, innovation and entrepreneurship thinking and professional basic ability cultivation, innovation and entrepreneurship and professional practice ability as well as innovation and entrepreneurship ability practice.

The specific "four-wheel" implementations are as follows:
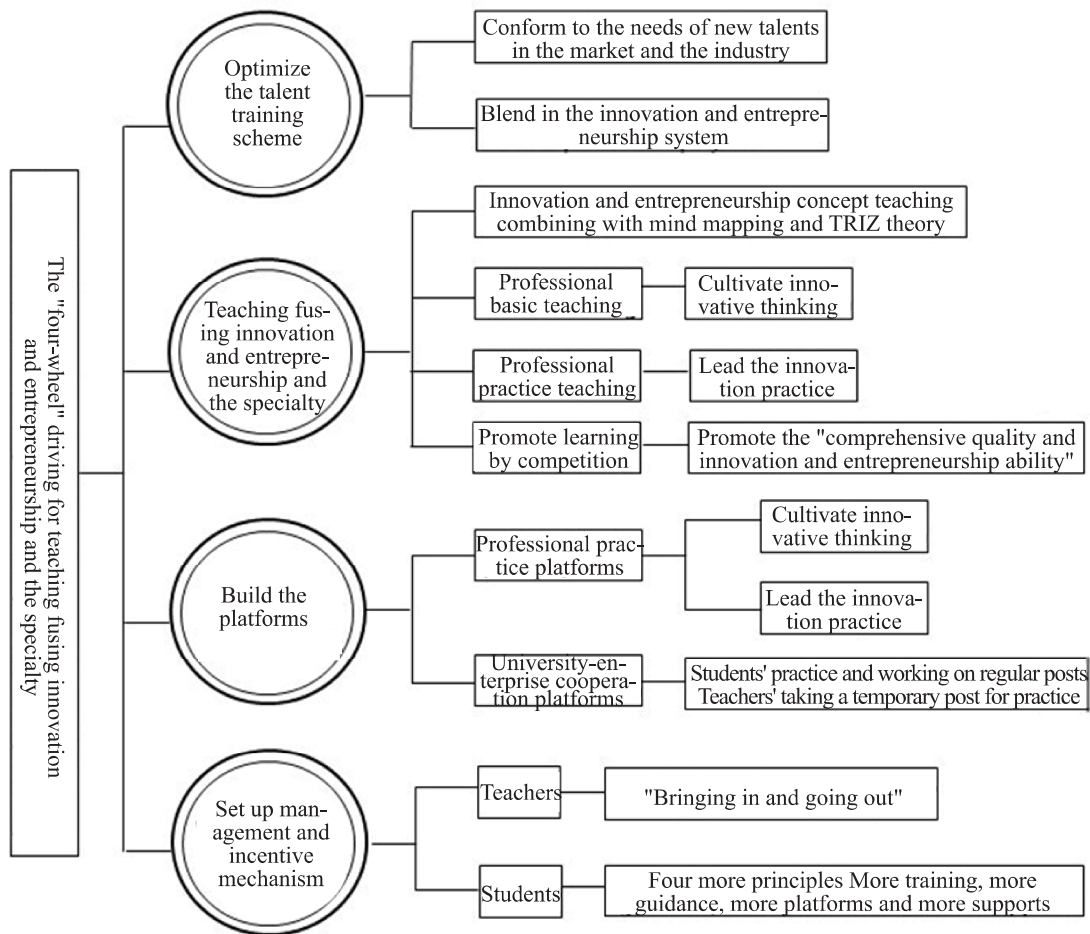
3.2 "Basic Wheel" – Specific Implementation of Innovation and Entrepreneurship and Professional Education Integration

Idea has been changed, and center has been changed from previous "teaching" to "learning"; the production and education integration has been concerned, and integrated cultivation of innovative thinking in the professional basic course education to promote the students' ability to explore the problems have been explored; Innovative training has been conducted with knowledge applying and integrated with innovation in the professional practice teaching, and the specific implementation program is as follows:

1) Mind mapping and TRIZ theory are integrated in the innovation and entrepreneurship teaching; combined with the professional market demands, the problems are found, and the rules are summarized by divergent thinking to conclude demands, search the problem source and find solution.

2) The students' innovative thinking is cultivated in teaching of the professional basic course. For example, in the course of C++ Basic Program Design once every year, by the knowledge explanation and homework assignment, the students are required to give multiple solutions to each question to avoid sameness, cultivate the students' innovation awareness and improve their autonomous learning ability.

3) In the teaching course of professional practice course, the students are guided to apply the knowledge learnt for innovation training. For example, in the course of ASP. NET Training, the students are grouped to conduct project design in the student-oriented and teacher-assisted manner. The members of the same team are managed according to the requirements for management of the market software development team. Members of the same team discuss together, discuss and determine the project content with the teacher, make work division clearly and elect the project leader to manage the project with full authority. The project after-class question answering platform is established to report the project progress ever week.

4) Professional teachers are required to establish studio to realize the connection between the studio and enterpris-

es[3][4] depending on the professional studio of computer application technology and with the help of the gathering and radiation effect of Internet platform to conduct the project research and development and innovation. The studio's "student-oriented, school-enterprise-led" method enables professional education of computer application technology to be highly integrated with innovation and entrepreneurship education.

5) With the ministerial and provincial, national discipline competitions, "Internet +" innovation and entrepreneurship competition and students' research and creation project practice as the goal, the corresponding competition activities are carried out to cultivate the students' comprehensive quality and innovation and entrepreneurship ability with "promoting innovation by competition".

6) Assessment standards able to reflect the students!/ master degree of professional knowledge and innovation and entrepreneurship practice ability are prepared.

Assessment is a means to examine the knowledge mastering degree, and assessment standards enable the course teaching to have a purpose. All the professional courses of Computer Application Technology require reasonably preparing the assessment standards able to reflect the students' mastering degree of professional knowledge and the corresponding innovation and entrepreneurship practice ability the students should have after completing the course.

3.3 "Key Wheel"—— Set up the Professional Practice Platform and School-Enterprise Cooperative Innovation and Entrepreneurship Platform

Setting up the multistep, individualized and three-dimensional[1] on-campus practice platform and innovation and entrepreneurship platform for students I key to the integrated teaching of professional education and innovation and entrepreneurship education for Computer Application Technology.

Taking the major of Computer Application Technology in Hunan Applied Technology University as an example, the on-campus practice platforms set up include the professional laboratory and professional studio. The laboratory platform is mainly used for professional practice teaching to cultivate the students' innovative thinking as well as ability to explore and solve problems through professional basis training and professional comprehensive training; Studio requires different varieties, including fundamental research and direction and field research, to enable the students to grow in a multistep and individualized way in the studio. Meanwhile, professional studio is also a bridge of the teachers and students to take over projects from outside and is a base to realize the connection with market and realize the innovation and entrepreneurship project

hatching.

On the innovation and entrepreneurship platform[5] the school and enterprise cooperate to set up, Hunan Applied Technology University and Guangzhou F.R.O. Electronic Technology Co., Ltd. have build the school-enterprise in-depth cooperation. The company's Chuangfeigu Platform has the large-scale case library constructed based on social demand, enterprise technology application and field direction for the students' innovation learning. On this platform, the entrepreneurship project practice can be conducted, and the whole-period management of project is realized by the specific "eighteen steps". The students can apply for project on this platform and can get the professional entrepreneurship guidance, implement project practice and realize project hatching. Meanwhile, enterprise provides the teachers with the opportunities of exercising by temporary post and provides the students with the opportunities of entering the company for learning.

3.4 "Guarantee Wheel"—— Set the Teacher and Student Management and Incentive Mechanism

According to the major cultivation requirements and corporate talent demands, the innovation and entrepreneurship education management and incentive mechanism able to combine the professional skills with the innovation and entrepreneurship practice ability and able to reflect the professional ability quality and comprehensive level is designed.

1) For teachers, the "bring in, go out" measure is taken for management and incentive. The corporate excellent technology development and management personnel[7] are recruited as the innovation and entrepreneurship teachers specially invited by school to participate in the course system construction of innovation and entrepreneurship and professional education integration of Computer Application Technology and carry out the series of lectures and guide the students' entrepreneurship practice. For the existing teachers of the school, the "go out" measure is taken. They utilize the holidays to study in the enterprises in batches, understand the corporate action conditions, participate in the corporate technology development, and they are periodically organized to exchange and communicate to promote their innovation and entrepreneurship practice guidance and teaching research ability.

2) For the students, "four more" principle is taken for management and incentive. "Four more" means more cultivation, more guidance, more platforms and more support specifically. The heuristic and incentive teaching method is taken in the basic education of course major to more cultivate the students' innovative thinking; The "team project training" method is designed in professional prac-

tice teaching to carry out teaching and more guide the students' innovation training; In platform construction, more entrepreneurship practice platforms as possible are created for students; The students are provided with more support for innovation and entrepreneurship in site, technology, expense and project hatching.

4. Conclusion

Colleges and universities are cradle for innovation and entrepreneurship talent cultivation.[8] In cultivation of professional talents of Computer Application Technology, by the four-wheel drive of optimizing the "professional talent cultivation program integrated with innovation and entrepreneurship", implementing "specific teaching of innovation and entrepreneurship and professional education integration", setting up "multiple professional practice platforms and school-enterprise cooperative innovation and entrepreneurship platform" and set "reasonable teacher and student management and incentive mechanism", organic integration of the professional education and innovation and entrepreneurship education is the requirement for era development, and it is also the powerful guarantee to highlight the major features and improve the students' innovation and entrepreneurship ability.

References

[1] Zhang Jin, He Xiang, Xin Xin, Fan Hua and Chen Weijian. Construct Innovation and Entrepreneurship Education System led by "Seek Principle by Practice" Culture[J]. Education and Teaching Forum, 2018 (17): 34-37. (in Chinese)

[2] Su Fei, Xiang Guie and Cao Zhuangzhuang. Current Situation and Promotion Approaches of Local-Application Innovation and Entrepreneurship Education in the Universities —— With Chizhou University As An Example[J]. Journal of Liaoning Institute of Science and Technology, 2018, 20 (01): 35-37. (in Chinese)

[3] Zhou Runmiao, Research on Application of Studio Teaching Mode in The Major of Computer —— With The Major of Computer in Hunan Applied Technology University As An Example[J] Contemporary Education Research and Teaching Practice (Electronic Version), 2017.7:

[4] Zhou Runmiao. Research on ASP. NET Course Teaching under "Six-Industry Connection" Talent Cultivation Mode[J]. Information and Computer (Theoretic Version), 2014 (06): 221-222. (in Chinese)

[5] Wang Weizheng. Exploration of Innovation and Entrepreneurship Education Path for Major of Communication Engineering in Colleges and Universities in China[J]. Computer Era, 2018 (02): 74-76. (in Chinese)

[6] Fang Ying and Xu Yizhou. Reflection on Integration of Innovation and Entrepreneurship Education and Professional Education —— With Major of Art Design As An Example[J]. Science and Technology View, 2018 (05): 127-128. (in Chinese)

[7] Wang Duchun, Ma Haikun, Zhang Wei and Zhang Haihong. Practical Exploration of Deep Integration of Innovation and Entrepreneurship and Professional Education in Agricultural Colleges and Universities —— With Northeast Agricultural University As An Example[J]. Journal of Northeast Agricultural University (Social Science Edition), 2016, 14 (03): 84-89. (in Chinese)

[8] Wang Fuying, Lin Yanxin and Hou Xin. Discussion on Integration of Innovation and Entrepreneurship Education and Accounting Major Education[J] Friends of Accounting (Early), 2010 (03): 123-124. (in Chinese)