

## College Students' Creative Ability Training Based on Discipline Competition Platform

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**Abstract.** In the current higher engineering education, the improvement of student's innovative quality has become the primary goal of the construction of education model. This article relies on professional teachers and business instructors in colleges and universities to build a "double-tutored teacher studio", integrate their own knowledge resources and management experience, gradually improve the discipline competition platform, promote "project-oriented" teaching methods, and build a student-centered The practice teaching model; At the same time, relying on the competition platform, build a student learning community, and carry out innovation and entrepreneurship education activities based on the theme of "Internet Plus". The practical results show that students can make full use of the two different education environments and educational resources of schools and enterprises to conduct self-directed learning and team-based collaborative learning, so that practical teaching runs through the entire process of learning and cultivates truly high-end competitive high-end products. Engineering talents.

### 1 Introduction

The ability to innovate is the use of existing knowledge and theories to constantly bring forth new ideas, new theories, new methods and new inventions in science, art, technology and various practical activities with economic, social, and ecological values. The improvement of college students' innovative ability is a requirement for personal development, social-economic development and national innovation strategy. It also has a role in promoting national independent innovation capability, rejuvenating national science and technology, and developing national economy. At the same time, it is also an inevitable requirement to improve the quality of students themselves. The subject competition is an extracurricular science and technology activity for students. It has an important guiding role in the improvement of students' learning awareness, competitive awareness, scientific spirit, team spirit, and organizational ability, especially for the cultivation of students' innovative ability. It is also a student's growth. An effective way for the talents that companies need.

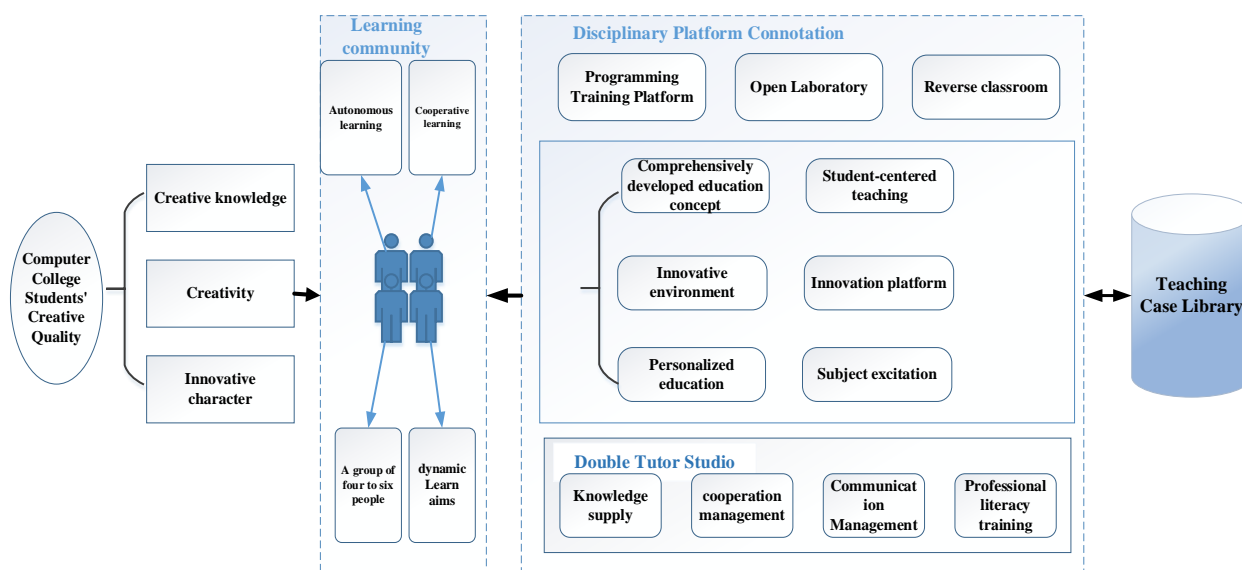
Through the construction of the discipline competition platform, it is possible to guide and promote the reform and innovation of related management systems, theoretical teaching systems, practical teaching systems, and teaching methods. It is also a practical and feasible way to improve the teaching level and scientific research capabilities of teachers, and to form a good style of study and promote campus development. Cultural development and the promotion of the visibility of schools also play an important role.

The discipline competition plays an important guiding role in guiding students in in-depth professional learning, improving students' quality of engineering, improving students' learning awareness, competitive awareness, scientific spirit, and team spirit. This paper deeply studies and

analyzes the group characteristics of computer students in the knowledge structure, way of thinking, behavior, cognitive orientation, and psychological state. Relying on the establishment of the "Dual Tutor Studio", we started from the five key influencing factors of "innovation platform, basic qualities, training mode, faculty resources, teacher-student relationship", and constantly improved the connotation and mechanism of the discipline competition platform, and practiced computer college students' Innovation quality training process.

## 2 Construction and Improvement of the Competition Platform

The dual tutor studio extends the time and space for teacher-student communication. Based on studios, tutors conduct regular exchange activities such as various types of technical salons and knowledge sharing sessions around competition tutoring and integrate them into all aspects of professional education. This not only enriches the content of knowledge supply in the cultivation of innovative quality, but also improves the knowledge structure. At the same time, it reorganizes and packs isolated individual competition activities, and conducts different types of student teams according to the schedule, competition system, and requirements for professional skills<sup>[3][4]</sup>. In terms of learning team building, the "learning community" was built with four to six people, male and female mixed, and non-leadership student groups. It broke the original one-to-many coaching approach and fully stimulated the initiative of the learning body and led to innovation. Learning the development of the community; promoting the "project-led" competition teaching and counseling method, and comprehensively advancing the innovation education for computer majors<sup>[5][6]</sup>.



**Fig.1** Innovative Quality Training Relied on Disciplinary Platform

### 2.1 The establishment of "double tutor studio" as a new platform for innovation education

Double mentors studio fully integrated between the two sides of knowledge resources, human resources and management experience, to provide professional quality, professional quality training, and knowledge supply, collaborative management, communication management, innovation, entrepreneurial activity of incubator, etc. The two tutors' studio is jointly named by the school-enterprise tutor, which enhances the sense of honor of the subject, and establishes the management system and related quality assurance measures .

Campus supervisor is responsible for the training of the students' professional skills, the enterprise supervisor is responsible for training students' professional quality and the social ability,

we regularly organize technical Sharon, public class, online communication and other activities, and provide personalized custom practice resources for students, the enterprise real post responsibility as students training content quality evaluation standards, throughout the course innovation practice activity, guides the student autonomy, inquiry-based learning. At the same time, the activity of the studio was incorporated into the innovation and entrepreneurship education system, and the students' professional skills and innovative qualities were constantly improved in the combination of engineering and teaching mode.

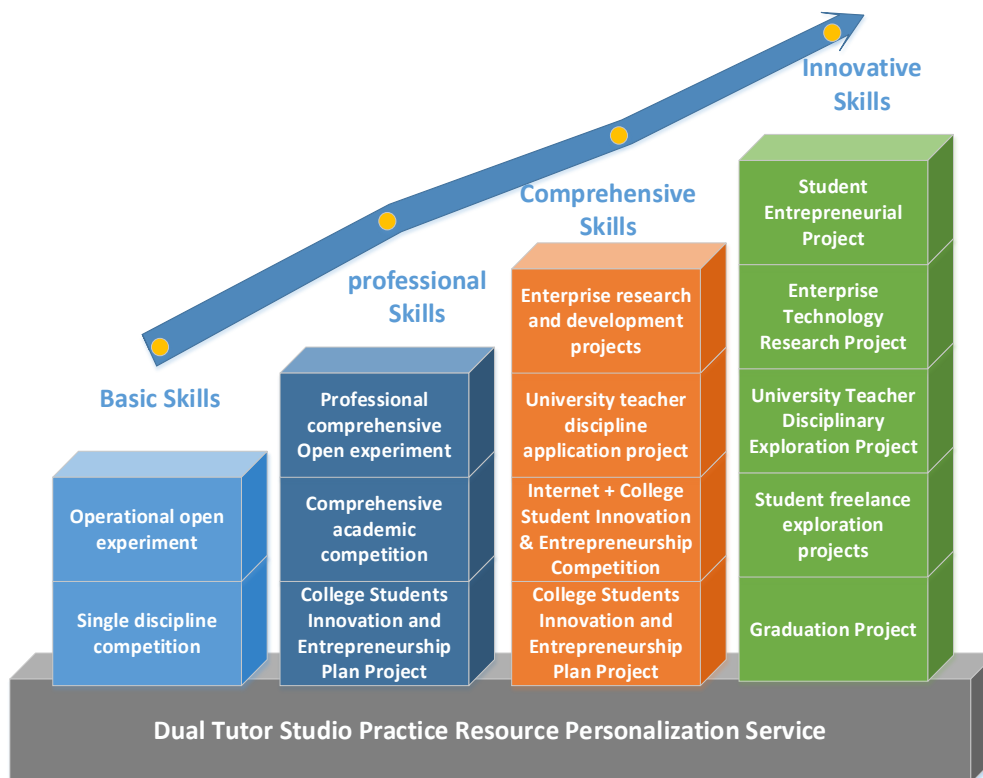
## **2.2 Use "learning community" as the service object of innovation education**

In order to fully respect the students' personality, shaping their own subjectivity, the pursuit of equal participation of students, the pursuit of the diversity of thinking and ideas, learning community as the organizational unit in the competition organization form, learning community group with students individual voluntary for the principle, in a mixed work in groups of four and in the group without a leader, to activate the collaborative thinking. The core of group learning is "collaborative learning for sprints and challenges". Students' different thinking and understanding of each other can promote their understanding of a problem more deeply. At the same time, the students' respective subjectivity is reflected, and they are honest with each other, respect each other, cooperate and negotiate with each other, create an equal and democratic learning atmosphere, and realize real learning.

The "learning community" group, based on the principle of students' individual willingness, is a group of four to six people mixed with boys and girls, without leaders in the group, and fully activates cooperative thinking. In the competition counseling teaching based on learning community, we emphasize the independent and collaborative learning. Under the guidance of the preset goal, the students actively organize the learning process according to their own quality, and finally realize and achieve the process of the intended learning goal. Students' self management, self supervision, self motivation "grow up, emphasize" autonomy ", independently determine the learning objectives, independent form the project team and independent supervision and determining, autonomous learning, autonomous learning process for problem solving ways.

## **2.3 Integrate various disciplines competition resources through competition platform and conduct personalized customization services**

To professional education teaching content and curriculum content of computer science class competition constantly fusion, will in-class experiment, integrated experiment way of examination and discipline competition format and close to the rating system, will be the topic of comprehensive subject competitions as a project case into daily classroom teaching examples. From all kinds of competition of an individual and comprehensive discipline, the training program of the college students' innovative entrepreneurial project, the type and corporate public relations subject to restructure and packaging, for different knowledge and professional skills of students team customized personalized innovative practice project resources, promote their basic skills, professional skills and comprehensive skills to the innovation of the all-round development.



**Fig.2** Dual Tutor Studio Practice Resource Penalization Service

## 2.4 Build an integrated training platform for innovation quality integration

We should make full use of all kinds of single-item experimental platforms in professional construction and laboratory construction to build an innovative quality training platform<sup>[7][8]</sup>. Platform by the creative thinking training module, the programming language basic training module, algorithm analysis and design of training modules, training modules, big data and data mining for the students from computing based programming ability, thinking ability, the construction of a face in the field of data analysis, the improvement of ability of arithmetic design platform support. At the same time, the second class design is conducted based on the professional training objective, and the open experiment, public elective course and innovative practical micro-course are set up to encourage students to self-study and study in fragments.

## 3 Effectiveness of Competition Platform

### 3.1 Relying on the school-enterprise dual tutor workshop, the university-enterprise cooperation will be implemented

Studio effectively integrate the knowledge of the high quality resources, human resources and management resources, provide students with personalized custom practice resources, professional quality, professional quality training, and knowledge supply, collaboration, communication and project management services. Combining the cultural connotation of the traditional "mentoring system" and the education concept of "student-centered", this paper constructs a new type of teacher-student relationship, and combines education and education with professional skills. It is more feasible to make the relevant practical activities of education. The name of the studio has a distinctive personalized label to strengthen the sense of ownership. Through the related incentive mechanism and the quality assurance mechanism, the cooperation between the school and

enterprises is actually implemented.

Our university has established 10 professional “double-tutor workshops” with famous IT companies such as Tencent, Digital China, Oracle, Active Network, and Clover Information, and has appointed more than 30 corporate instructors. Through the operation of the studio, more than 20 student innovation teams for the design and application of “Internet+” products have been incubated into well-known start-up incubators such as Xi’an Datang Telecom Mobile Incubator and Lightning Incubator.

### **3.2 Practice the "student-centered" teaching concept and build an innovative learning community**

"Learning community" the establishment of the teaching guidance mechanism, in the process of innovation education practice of the "student-centered" teaching philosophy, to build the students as the center of the practice teaching mode, the students their own subjectivity, honest to each other, mutual respect, mutual cooperation, to create the learning environment of equality, democracy, the true sense of the study. The teaching model of competition guidance with "learning community" as the unit, constantly practicing the project-based teaching method, case teaching and experiential teaching method; With project driven and innovation, we can better find the joint point of theory and practice, widen our vision and cultivate students' ability of collaboration and innovation.

Since its inception, based on a double mentors studio competition platform, set up the red blood cells, network software specially trained team offensive and defensive green corps, Internet + innovation association, unmanned aerial vehicle (uav) learning community organization of the club of innovation, set off an upsurge of learning computer programming language, race in various disciplines, big project, double play a vanguard role in scientific research project.

### **3.3 Improved the academic competition performance, promoted the construction of the double teacher team, and improved the quality of talent cultivation**

Through teaching constantly fusion, competition platform also constantly improve, enterprise post standard timely of choose and employ persons in the computer class in college students' innovative quality evaluation standard, become a professional structure adjusting and optimizing, personnel training plan formulation of important basis. Through the continuous updating of the school philosophy, the reform of practice mode is promoted, and the quality of students is highly recognized by the society and enterprises. Professional teachers in colleges and universities participate in innovative education activities through the studio, and more directly understand the new ideas, new technologies and new methods of the industry. Through the professional practice of new skills as the main content of the enterprise cooperation, better to explore the industry needs and broaden the horizon. Business mentor guidance teaching task in competition, actively participate in the professional construction, curriculum construction and all kinds of innovative entrepreneurial class declaration, concluding the work of the project, enriched the content between work of practice training bases.

The continuous improvement of the competition platform further promotes the teaching reform of the professional core curriculum, which makes the teaching content design and the competition outline and the competition system continuously integrated, and promotes the professional construction and development. In the past three years, the ministry of education has been approved by the ministry of education for 4 projects, 3 provincial and provincial high-quality resource sharing courses, and 6 school-level quality engineering projects. Group teachers team repeatedly won the national competition "good teachers", "college students' innovative undertaking teacher" datang

telecom incubation bases "xi 'an business mentor", and so did the double teachers construction, to become a computer class college students' innovative education in the corridors of power.

Training mode based on the practice of the learning community so that the students of innovation thinking method and practical ability has been greatly improved, the project practice ability and innovation ability, students employment quality and level has been greatly improved. For nearly three years graduate, about 5% are well-known Internet companies such as tencent, IBM, baidu hired, about 10% of the students by other Internet companies employ a line, the social recognition of relevant professional is also improved.

#### 4 Conclusion

"School-enterprise dual tutor" combines the basic professional skills training of students with the internship in the enterprise. It is an in-depth integration of the knowledge resources, human resources and management system of the university and enterprise. This paper constructs the professional knowledge resources of the students as the center, and integrates the professional teachers and enterprise tutors in colleges and universities, as the innovation and exploration of the relationship between teachers and students in the traditional teaching mode. As a support to the student group to carry out the innovation and entrepreneurship education practice activity based on the theme of "Internet +". Students make full use of the two different education environment and education resources of the school and the enterprise, and carry out individual independent learning and teamwork learning. Build "integration" practice teaching, the school of enterprises in the "school" teacher studio comprehensive skills training and lieutenant colonel "enterprise" work-integrated learning "the practice of field work, such as three-dimensional teaching mode, make the practice teaching throughout the whole process of learning, cultivate true high-end applied talents with international competitiveness.

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