

# Exploration and Practice of “Trinity” Practical Education System for Science and Engineering Majors

## —Taking Chongqing University Counselor’s Studio: Practice Education Base as an Example

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### Abstract

The only way to cultivate talents is through practice education, an important part of moral education in colleges and universities. In order to unify practical teaching, innovative thinking and moral cultivation, and achieve the unity of knowledge and practice, this paper explores and practices the construction of practical education system for science and engineering majors. Taking “innovation and entrepreneurship, voluntary service and social practice” as the three key carriers, the “Trinity” practice education mode is constructed. According to the ideas of “full staff, whole process, all-round” and “design, implementation, evaluation and improvement”, a multi-level and all-round practical education system of science and engineering specialty is built with “space, competition, project and activity”, we have walked out of a professional education road.

### Keywords

Science and Engineering Major, Trinity, Practice Education System

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## 1. Introduction

College students are the talents of the country and the hope of the nation. The ideological status, moral quality, cultural quality and physical and mental health quality of college students are related to the future and destiny of the party and the country, the grand goal of building a moderately prosperous society in an all-round way and the great rejuvenation of the Chinese nation. On May 4, 2013,

Xi Jinping pointed out in a discussion with outstanding youth representatives from all walks of life that “learning is the ladder of growth and progress, practice is the way to improve skills, and the quality and ability of youth directly affect the process of realizing the Chinese dream” (People’s Daily, 2013). Xi Jinping’s speech profoundly expounded the role of learning practice in the growth and development of young people, clarified the responsibility of young people in the process of realizing the Chinese dream of great rejuvenation of the Chinese nation, and put forward ardent hopes for the all-round growth and healthy growth of young college students. “The Opinions of the CPC Central Committee and the State Council on Further Strengthening and Improving the Ideological and Political Education of College Students” issued in August 2004 pointed out: “strengthen and improve the ideological and political education of college students, improve their ideological and political quality, and cultivate them into builders and successors of the cause of socialism with Chinese characteristics.” (Xi, 2004). This important exposition puts forward new requirements and points out a new direction for the ideological and political education of college students in the new period and new stage. It systematically answers the fundamental question of “what kind of people to cultivate and how to cultivate people” in higher education under the current situation, which is the fundamental direction of the development of higher education in China.

General Secretary Xi Jinping pointed out that we should attach importance to and strengthen the construction of the second classroom, attach importance to practical education, adhere to the combination of education with productive labor and social practice, and extensively carry out various social practices, so that students can understand the national conditions and society, receive education and develop talents through personal participation (Xi, 2016). In order to deeply learn and apply Xi Jinping’s thought of socialism with Chinese characteristics in the new era, focus on educating people for the party and the country, build a “Trinity” practical education system, promote the all-round development of students’ morality, intelligence, physique, beauty and labor, and grow into a new generation of the times who can shoulder the important task of national rejuvenation.

Under the guidance of the concept of “three aspects of education”, focusing on the cultivation of high-quality innovative talents, and taking “innovation and entrepreneurship, voluntary service and social practice” as the three key carriers, a “Trinity” practical education system is constructed. In accordance with the ideas of “all staff, whole process and all-round” and “design, implementation, evaluation and improvement”, we will create a new pattern of multi-level and all-round innovation and entrepreneurship of “space, competition, project and activity”, and build a new model of professional and high-quality volunteer service and social practice of “position, project and competition”. We will build a team of full-time and professional practice education tutors covering “subject experts, ideological and political teachers, industry experts, and entrepreneurship experts”, truly gather the joint forces of education in various fields and

links, and lead students to receive education, develop talents and make contributions in practice, and grow into socialist builders and successors with all-round development of morality, intelligence, physique, aesthetics and labor.

## **2. Construction of Practical Education System for Science and Engineering Majors**

### **1) Focus on cultivating the ability of entrepreneurship and innovation, and create a new pattern of innovation and entrepreneurship of “space, competition, project and activity”**

It is to build student maker space and student entrepreneurship base, establish cooperation with international incubators such as PNP and hax, and domestic incubators such as first maker, maker e, etc., which are independently operated by student innovation and entrepreneurship communities, and provide services such as creative exchange, roadshow display, expert counseling for students' innovation and entrepreneurship. Build “national, municipal and school level” innovation and entrepreneurship competitions led by “Internet+”, Challenge Cup” and “China College Students' Entrepreneurship Competition”, carry out four stage practical training of “pre-competition mobilization, in-competition guidance, in-competition defense and post-competition incubation”, and constantly cultivate and incubate students' innovation and entrepreneurship projects, so as to promote learning and innovation through competition.

It is to build a “1 + 3” activity system with “Science and Technology Culture Festival” as the leader and training camp, lecture hall and sharing meeting as the main body, so as to cultivate the fertile soil of innovation and entrepreneurship culture. For three consecutive years, it has participated in the Chongqing competition of China International “Internet+” College Students' innovation and entrepreneurship competition, the Chongqing competition of “Challenge Cup” series competition for five consecutive years, and the provincial and ministerial level and above activities such as the Southwest Division competition of I CAN International College Students' Innovation and entrepreneurship competition, Chongqing students' creative training class, etc.

### **2) Focus on training practical ability and build a new model of volunteer service and social practice of “position, project and game”**

According to the characteristics of students of different majors and their needs for talent development, we will establish enterprise practice bases such as Chang' an group and GAC Research Institute, and establish volunteer service bases such as Ciqikou and Bishan primary schools, and establish social practice bases such as Zhongyi Township and Chetian Township, and establish campus positions such as youth volunteer association and volunteer service team, so that students can combine their interests and hobbies to independently choose the practice types and locations, this can constantly strengthen the effective linkage of “universities, government and society”, and provide high-quality social practice for students, and improve the breadth and depth of students' participation.

It is to organize and participate in the volunteer service work of Smart China Expo, The Belt and Road International Skills Competition, The Belt and Road Land-Sea Joint Development Forum, Chongqing Talent Conference, Chongqing International Marathon, Chongqing Women's Half Marathon and other important competitions, and establish volunteer selection, training, management and reward mechanism.

**3) Focus on gathering the whole staff and build a team of practical education tutors covering “subject experts, ideological and political teachers, industry experts and entrepreneurship experts”**

It is to invite experts from the school of public administration, school of economics and business administration and other related disciplines, enterprise experts from Chang' an Automobile Company and SAIC Group, and entrepreneurial experts such as China University Innovation and entrepreneurship industry investment alliance to form a team of practical education tutors with excellent moral quality and strong professional skills, so as to form a joint force of all staff education.

It is to build a counselor's studio of Chongqing University. For studio counselors and other counselors, carry out online and offline normal discussion and exchange and specific practice education work exploration, promote the professional and professional development of studio counselors and other counselors, and cultivate some influential counselors.

### **3. The Effect of “Trinity” Practical Education System**

**1) To promote learning by competition and to promote innovation by competition has achieved remarkable results**

Taking “innovation and entrepreneurship” as a breakthrough, we have built a “new engine” for students to achieve their career. In the three major competitions of “Internet+”, “Challenge Cup” and “China College Students' Entrepreneurship Competition”, we have won national awards and made outstanding achievements in the discipline competitions. We have helped the University to host the 8th China International “Internet+” College Students' innovation and entrepreneurship competition, and won the award of the State Council's mass entrepreneurship and innovation demonstration base National innovation and entrepreneurship typical experience colleges and universities.

It is to guide the students to win the gold medal of the national higher education master track in the 5th China College Students “Internet+” Innovation and Entrepreneurship Competition in 2019, realizing the historic breakthrough of zero Gold Award in the national competition in Chongqing. In the 7th China College Students “Internet+” Innovation and Entrepreneurship Competition in 2021, the school won the gold medal of “Youth Red Dream Building Journey” track in the national competition, realizing the historic breakthrough of zero Gold Award on the track.

It is to guide the students to win the first place in the creative group Gold

Award in the 2017 “China College Students’ Entrepreneurship Competition”. In the 2017 “China College Students’ Entrepreneurship Competition”, one Gold Award (the only gold award in Chongqing) and two Silver Awards were won, which helped the University win the “Cup of Excellence” for Chongqing for the first time. In the 2020 “Challenge Cup” Chinese college students’ Entrepreneurship Plan Competition, it won one Gold Award (Chongqing’s only undergraduate university Gold Award), helping the university to win the “Winner’s Cup” again.

It is to guide students to win the grand prize of 2020 National Undergraduate Engineering Training Integration Ability Competition, the progressive innovation special award of 2021 “Challenge Cup” National College Students’ extracurricular academic and technological work competition, the first prize of national college students’ mechanical innovation design competition, the first prize of national college students’ intelligent car competition, the first prize of national college students’ energy conservation and emission reduction social practice and science and technology competition The best creative project of national college students’ innovation and entrepreneurship annual meeting.

### **2) Remarkable achievements in voluntary service and social practice**

On the basis of “voluntary service and social practice”, we have built a “melting pot” for students to develop excellent skills, and guided students to actively participate in the hot practice of fighting against epidemic situation, “wisdom Expo” and “three going to the countryside”, which were reported by mainstream media such as people’s daily, Xinhua news agency, China Youth Daily, Chongqing daily and Chongqing TV station.

It is to mobilize students to participate in the volunteer service of epidemic prevention and control in their hometown, go to the front line of villages and communities to fight against the epidemic situation, and get the commendation and thanks from the government and institutions. He has been awarded as an excellent volunteer in China International Intelligent Industry Expo, The Belt and Road Initiative international skills competition, The Belt and Road Land-Sea Joint Development Forum and other large-scale competitions.

It is to guide the students to win the gold award of the 5th China Youth Volunteer Service project competition, the top ten public welfare projects in Chongqing in 2018, the Rural Revitalization award in 2020 and the best innovation award of Chongqing public welfare project in 2021.

It is to organize students to go to Shizhu Tujia Autonomous County and other places to carry out social practice activities of “three going to the countryside”. The team was awarded the excellent team of social practice of “three going to the countryside” in Chongqing, and the students were awarded the advanced individual of social practice of “three going to the countryside” in Chongqing.

### **3) Teaching and learning are mutually beneficial, and practice promotes teaching with fruitful results**

Through the “Trinity” practical education system, we have realized the mutual benefit of teaching and learning, helped the relevant ideological and political

workers to publish papers in Journal C, presided over the Chongqing education reform project, and was awarded the excellent innovation and entrepreneurship tutor of China College Students “Internet+” Innovation and Entrepreneurship Competition, the excellent instructor of the national college students innovation and entrepreneurship annual conference, the advanced worker of Smart China Expo, and the director of the national college students innovation and entrepreneurship annual conference Chongqing excellent innovation and entrepreneurship tutor, Chongqing social practice advanced workers, Chongqing excellent ideological and political workers.

The construction and effectiveness of the practical education base of Chongqing University Counselors’ famous teachers’ studio is an important medium for college education and teaching under the new situation, and an effective way to promote the formation of full staff, whole process and all-round education. Others play an irreplaceable role in cultivating college students’ sense of social responsibility, innovative spirit and problem-solving ability, which is the only way to cultivate talents (Ministry of Education, 2012). For the science and engineering majors in Colleges and universities with strong practicality, the practical education base is the key to ensure the training of research-oriented talents and an important link in the training of science and engineering majors. This practical education base is not only the only way to cultivate good traditions and spirit, but also the only way to cultivate applied talents in science and engineering, and it is an important guarantee to achieve the goal of cross talent training in new engineering.

### Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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