

# Practice and Reflection on Teaching and Networking Platform of Subject Competitions for Undergraduates

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## ABSTRACT

This article mainly discusses the practice process and reflection on teaching, networking platform of subject competition instruction, while analyzing the rationality of teaching, networking platform of subject competition instruction. With the teaching practice, it is concluded that the teaching, networking and platform of subject competition for undergraduates can greatly improve the instruction scale and efficiency, and reduce the space-time constraints of instruction. Meanwhile, it is proposed that the production of teaching resources and the instruction process should complement and promote each other, and the quantity and quality of teaching resources should be improved through the teaching process. This article can provide reference for teachers participating in the subject competitions.

*Keywords: subject competition, teaching, networking, platform*

## I. INTRODUCTION

Subject competition is an essential part of mass entrepreneurship and innovation education of colleges and universities. The domestic colleges and universities have made excellent research and practice in subject competition and student training [1][2], subject competition and course formation and reformation [3] [4] [5], subject competition and the major formation and reformation [7] [8] [9] [10] [11] [12]. However, the instruction of subject competition is usually carried out by the offline teaching, and the instruction content varies depending on different teams. For instructors who have been engaged in the subject competition instruction for a long time, it will be found that there are a lot of common knowledge needed to be taught repeatedly. Therefore, it is quite necessary to sort out the accumulated knowledge in the process of subject competition instruction and carry out platform and teaching to improve the efficiency of instruction. The author of this article has been engaged in subject competition instruction since 2011 and has led more than ten teams to participate in the innovative and pioneer competition during the COVID-19 epidemic in early 2020. Due to the outbreak of COVID-19 epidemic at the end of 2019, the ministry of education proposed to utilize network platform, "suspending classes without stopping learning". Therefore, the subject competition instruction could only be carried out on network. Chengdu University invented and constructed a network teaching platform named Chaoxing Erya to ensure the regular teaching to carry out smoothly during COVID-19. The author found out that putting the subject competition

instruction on the Chaoxing Erya network teaching platform can largely increase the efficiency of the instruction in the process of network teaching.

## II. THE RATIONALITY OF SUBJECT COMPETITION TEACHING AND NETWORKING PLATFORM

Subject competition instruction is an important part of mass entrepreneurship and innovation education of colleges and universities and is an important supplement to the teaching process. Although the enthusiasm of both teachers and students to participate in subject competition instruction has been hugely influenced under different managements and policies, and subject competition instruction is not a mandatory task for most teachers of various colleges and universities, but colleges and universities throughout the country have the incentive credit recognition policy on mass entrepreneurship and innovation for award-winning students. Therefore, the teaching assessment objectives of the subject competition instructions can be evaluated based on the credits of the students' final award certificates. Some colleges and universities have teaching workload identification policies for major competition projects. Therefore, teaching is rational for both teachers and students.

Subject competition instruction includes the transmission of knowledge and instruction of the project. The transmission of knowledge is similar to the current teaching process, there is no essential difference between project instruction and practice course instruction.

Therefore, from the perspective of teaching activities, the teaching of subject competition is rational too.

Most content of subject competition is similar; thus, the information can be sorted and shared. Although the competition works of each team are different, most content involved in the competition is the same, such as ideas, business plans, PPT, and presentation videos. Therefore, the information can be sorted as teaching resources and can be uploaded to the Chaoxing Erya network teaching platform. The different instructions of each team can be screen recorded as case share when commenting on the webcast, to avoid future similar mistakes or for following learning. Overall, the teaching content networking platform is rational.

### **III. PRACTICE OF SUBJECT COMPETITION TEACHING PLATFORM**

The combination of Chaoxing Erya network teaching platform and Xuexitong application is indeed an excellent network teaching tool, which can realize the video-on-demand, live broadcast, classroom interaction, online test, attendance, homework distribution and correction, etc., and have a strong statistical report function. The author has created a course named "New Engineering "network +" College Students Mass Entrepreneurship and Innovation Competition Practice", and has constructed and practiced during competition instruction. In the past nearly one year's construction and utilization, a large amount of student feedback has been obtained and the teaching resources of competition have been organized timely.

#### *A. Construction of subject competition teaching platform*

The construction of the subject competition platform involves sorting and organization of teaching contents. How to construct and what content to be constructed should be carefully considered. The construction objectives of the teaching content should be in accordance with the characteristics of subject competition, should aim to improve the efficiency of instruction and to enhance student's learning ability. For the course content design, we have programmed competition project introduction, competition practice, competition software tool introduction, etiquette training, excellent cases, summaries of outstanding team members, honor wall and team photos, etc. Other than traditional skill-based competitions such as mathematical modeling competitions, ACM, etc., there are different sorts of entrepreneurship and innovation competitions for students of colleges and universities. The competition time and competition requirements vary depending on specific programs. Thus, the information about each competition should be sorted to facilitate students' searching process. The competition practice mainly focuses on the practical problems that students encounter during the competition, such as team organization and management, writing of

business plans, notices of field defense, etc. The competition software tool mainly introduces WORD typesetting, PPT production, Axure prototype design, Adobe processing software, etc. The excellent cases part includes the outstanding works of the students over years. Students can have an opportunity to observe those works and clarify their own goals. There are also welcome messages for the new team members and wishes for the retired, to realize the smooth replacement between new and old team members.

#### *B. Teaching guidance of subject competition based on teaching platform*

Teaching platform based subject competition instruction relies on platform resources to realize the learning of general competition knowledge. Let the students form the habit of checking the network platform with problems, the students' understanding of the competition rules, the mastery of basic software, the organization and the management of the competition team can all be achieved by the network teaching platform. Only the project idea instruction requires face-to-face communication and discussion with instructors. The instructors should focus on the creativity of the project, the selection of technology and materials, the control of the process, and the presentation of the product etc. The instructors are no longer burdened repeated basic knowledge teaching. With the teaching platform, instructors can observe the online studying duration of students and have a preliminary grasp of students' learning status.

### **IV. REFLECTION ON NETWORK TEACHING PLATFORM**

From one year of practice on network undergraduate competition instruction, the author finds out that network instruction has certain advantages, especially in instruction scale and efficiency. meanwhile the spacetime constraint of instruction was reduced, and combines network teaching with teaching resource production together.

#### *A. The size of the students being directed is larger*

Network platform based subject competition instruction allows the sorting and uploading of general knowledge, which facilitates the students' online learning. The Chaoxing Erya network teaching platform utilized by Chengdu University can maintain the regular online teaching system of the whole university. Therefore, it has no restriction on the student scale. Instructors only need to instruct every team with their customized questions. For the previous offline instruction, limited by the personal time and workloads, the instructor can only instruct four to five student projects once. However, with the combination of online and offline instruction, one instructor can easily handle ten student projects once.

### *B. Improved efficiency of instruction*

The network teaching platform can hugely reduce the teacher's intensity of repetitive teaching, the same effect can be achieved by using the network teaching platform to instruct the subject competition. The repetitive works of these instructors include the introduction of various competitions throughout the year to the new team members, and handling of intellectual property rights issues of students' works. Taking software copyright application as an example, under the limited funding condition, all the software copyright applications are undergone by a competition team instead of an agency. When the number of software copyright applications is relatively small, the instructor can still handle the workloads. However, there is no time for the instructors to take care of dozens of software copyright applications. Through the online document and video production, the preparation of software copyright materials and declaration can be clearly explained to the students. This part of the work can be effectively handed over to the student teams. In the meantime, students can comprehend the process of software copyright application, and the volume of software copyright application will be increased accordingly.

### *C. Online video can be used to guide at any time*

Most subject competition instructions were accomplished on network during COVID-19 epidemic. QQ desktop sharing can be used for the real-time video review of works. Thus, the only limitation for the project discussion between teachers and students is the time planning. While offline instruction requires both teachers and students to arrive at the designated area at the designated time, network instruction allows quick communication for the competition projects. It makes the instruction more efficient. Even if the school resumes the on-site courses, our subject competition instructions are often through online meetings.

### *D. New instruction materials and course resources generated at any time*

During network instruction, we can screen record and share the typical problems that students encountered. We can realize the closed-loop process of "instruction--resource generation--instruction". The instruction and the generation of teaching resources complement each other to improve the efficiency of instruction. For example, the software and hardware work of students need to be recorded and edited into a presentation video. Each team has its own project, so the presentation video varies. However, there are some typical questions revealed from the video production. To avoid similar problems in the new teams, it is very necessary to record and comment on video of the previous team, and share it as sample work, especially the work reviewed and edited multiple times. Those works are meaningful to other teams.

### *E. Stimulating team members' enthusiasm and sense of honor with team introduction and honor wall*

It is very important to organize the previous award certificates and photos of the winning team on the network teaching platform. By reviewing award-winning information of the former senior students, the current team members also can build confidence and get more information about the level their work can achieve through the competition. In the meantime, students can learn about the historical evolution of each competition, so that students can learn from their elders the perseverance of hard work, no retreat and no give up.

## **V. CONCLUSION**

The subject competition of undergraduate is the training for students' comprehensive ability and the necessary supplement for students' professional study. Subject competition instruction is the process of continuous interaction between teacher and student. Through a network teaching platform and sorted network courses, instructors can effectively improve the efficiency and quality of the instruction activities of subject competition. In the meantime, the organization of historical award certifications and team information can enhance students' performance in the subject competition. Surely, network instruction has brought about some new problems. For example, after more than half a year of remote instruction under COVID-19 epidemic, instructors are not able to recognize their own team members once the students returned to school. Therefore, in the process of advocating network teaching platform, competition instruction should also aim to strengthen offline communication.

### **Acknowledgment**

This research was financially supported by the Special project of education reform and development of Chengdu Education Bureau in 2020 (Grant No. CY2020ZG04), the Key research base of Humanities and social sciences of Sichuan Education Department-Research Center of the Modern Design and Culture Research Center in 2020 (Grant No. MD20E023) and the Overall Urban and Rural Education Development in 2020 (Grant No. TCCXJY-2020-D43), the General Project of Sichuan Provincial Department of Education (Grant No. 18SB0148).

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