Construction and Exploration of Innovation and Entrepreneurship Platform for Urban Underground Space Engineering Students Based on DCLOUD Technology

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ABSRTACT: The contradiction between the increasing innovation and entrepreneurship activities of undergraduates and the backward management style becomes more and more acute. In order to improve the enthusiasm and participation of undergraduates in the subject competition, extra-curricular research projects and various entrepreneurial activities, and to better organize and manage various activities, a scheme for constructing the platform of innovation and entrepreneurship for undergraduates is proposed. INNOVATIVE STARTUP PLATFORMS INCLUDE MOBILE APPS and WEB back end management systems, and Android and IOS apps are written based on DCLOUD'S builder IDE, 5 + Runtime enhanced mobile browser engine, and the MUI Framework .The background management system is compiled based on the web page end technology. The platform of innovation and entrepreneurship includes News Push, competition strategy, pocket lab and online classroom and so on. The platform of innovation and entrepreneurship is of great significance to help college students participate in innovation and entrepreneurship projects and the cultivation of multi-disciplinary talents in urban underground space engineering.

1. Introduction

The undergraduate research and training program is a project funding program designed for undergraduate students. This plan adopts the project operation mode, through the undergraduate students to declare their own way to set up projects and give the corresponding supporting funds. The core of the program, which encourages students to complete the research independently under the guidance of their mentors, is to support undergraduates to carry out training on innovative

entrepreneurship programs, which is essentially a project-based learning process.

1.1 Development of research and training program for domestic undergraduates

The undergraduate innovation and Entrepreneurship Training Program started in China in 1995, initiated by Tsinghua University, and then carried out in various universities in China. Since the 21st century, almost all the universities in China have carried out various training programs for college students' innovation and entrepreneurship, and the number of participants has been increasing year by year. The fundamental difference between research university and ordinary universities is whether they can actively promote research-based learning and cultivate and improve the innovative spirit and scientific research ability of university students. This is a necessary condition for building a world-class University of research, integration and innovation.

In 2007, the construction project of teaching quality and teaching reform project of undergraduate course in colleges and universities was launched. "The National Program for Medium-and Long-term Education Reform and Development (2010-2020)" also calls for universities to promote interaction between scientific research and teaching, and to combine with the cultivation of innovative talents, so as to improve students' comprehensive quality ,cultivate students' innovative spirit and practical ability. In addition, in order to further enhance the participation of young students in innovation and entrepreneurship activities, more attention has been paid to supporting innovation and entrepreneurship. In recent years, China has actively held a number of high-level competitions, such as the National Internet + Innovation and Entrepreneurship Competition for college students and the Innovation and entrepreneurship plan competition for young people. The number of participants has been increasing year by year, and the trend towards internationalization has become more and more obvious, helped the students grow up.

1.2 The problems we face

Although the innovation and entrepreneurship training program can enable students to get in touch with related projects as early as possible and strengthen the exchanges between teachers and students, some outstanding students have also obtained many achievements such as papers, patents, competitions and so on, there are still many problems to be improved.

1.2.1 Information is fragmented and poorly integrated

At present, college students are more and more involved in innovative entrepreneurial activities, and the types and forms of innovative entrepreneurial activities are becoming more and more abundant. Both Subject contests and the SRTP program also offer a variety of Seminars.

At present, students learn about the school's various innovation and entrepreneurship competitions and projects mainly include WECHAT public accounts, QQ public accounts and various websites. But the entrance of WECHAT and QQ is very deep, the message is mixed, there is mutual interference, it is difficult to know the required information in time. The school's related push site is less concerned about students, open the browser, search the site to visit compared to WECHAT and QQ, the steps are more cumbersome.

Therefore, there is a lag and one-sidedness in the information acquisition of students 'innovative and entrepreneurial activities, and the platform of information integration and push is urgently needed.

1.2.2 Lack of understanding

In the context of high undergraduate engagement, students in fact know very little about the innovative and entrepreneurial activities they are involved in.

Take for example, the subject contest. Due to the variety of competitions, the academic affairs office is often unable to give a comprehensive introduction to each competition. Students' knowledge of the competition is limited to the title and brief introduction. The specific content of the competition, characteristics and needs can not be accurately grasp, can not find out for their own competition items. In addition, due to the lack of experience and strategies, first-time students are often unable to achieve good results. They need a role as a guide, to provide the necessary experience, stimulate enthusiasm, and better exercise their abilities.

1.2.3 Resources to be further utilized

Urban underground space engineering majors develop laboratories and provide laboratory and model making tools for undergraduate students. As the current management model is cumbersome, students can not make full use of the resources provided by the college, resulting in the problem of not knowing where to borrow and who to borrow . Further simplification of the laboratory management model is needed to provide an open platform for all undergraduates.

1.2.4 To be further aligned with the talent development program

Under the background of the new engineering course, new standards and requirements are put forward for the training mode of urban underground space engineering. In the aspect of training talents of urban underground space engineering, we should set up the compound talents training system and cultivate the intelligent and compound leading talents. The college is actively promoting the reform of undergraduate education and teaching, upgrading relevant specialties, and carrying out various reforms in the frontier and emerging fields of urban underground space engineering and intelligent building, such as urban underground space engineering and artificial intelligence. The hybrid teaching mode of combining virtual reality with virtual reality on-line and off-line, the construction of MOOC course group and virtual simulation experiment teaching project, the integration of talents cultivation and the quality of talents cultivation are promoted.

2. Platform function design

In order to solve these problems, it is very convenient for students to set up a platform of innovation and entrepreneurship based on mobile APP by taking advantage of the popularity of smart phone. The platform mainly includes four main sections: news acquisition, competition strategy, pocket lab and online classroom, as well as sub-sections such as ancillary functions.

2.1 News

Considering the problems of the backward means, the incomplete information and the time lag of the reception, we integrate and push the information in this section to make it efficient and convenient. This section mainly provides three levels of news content: School Competition Scientific Research Column, College Research Competition Column and SRTP Project Column.

The Scientific Research Section of the competition mainly includes the push of the date, place, conference and notice group of the competition. The follow-up information of the competition can be tracked and pushed through the cooperation with the organizers. In addition, the school regularly held a variety of extra-curricular research lectures, the column real-time update of extra-curricular research lectures information.

The competition of academic research mainly shares the latest research progress of famous professors and research experts in urban underground space engineering. Through this platform, we can share the scientific research ideas of

famous professors and scientific research experts with the undergraduates of urban underground space engineering, further train the students' scientific research consciousness, and create a good scientific research environment. The academy used to invite different types of tracking tweets. In addition, the school regularly held a variety of extra-curricular research lectures, the column real-time Update of extra-curricular Research Lectures Information.

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The extra-curricular research projects column mainly releases information about the extra-curricular research projects, so that students can receive relevant reminders at various time points in the SRTP project in time, so as not to cause problems due to information transmission delays. The key points include the release of the guide, matching the instructor, mid-term inspection, national (provincial) project stage inspection, project conclusion and many other key points. The current management method is to establish QQ notification group, and combined with SMS notification. This method has many disadvantages, because of the variety of projects, managers need to manage multiple notification groups at the same time, management is difficult. Through this platform, the information of key nodes can be effectively communicated, and the management and communication can be facilitated. Also, as a public platform, students who do not participate in the SRTP program can learn and familiarize themselves with the participation process of the SRTP program in advance.

2.2 Competition

As the main source of extra-curricular research credits, subject contest can

cultivate students' innovative consciousness, improve their problem-solving ability, and play a very important role in promoting the overall development of college students.

This section will systematically introduce the relevant competition information which is of great help to the improvement of students' innovation and professional ability. It also will help students to have a comprehensive understanding of the competition ,to a certain extent, it will also promote the improvement of competition participation. In addition, through the interview competition results of better students, the relevant competition to provide experience sharing and heavy, difficult analysis and other strategic services. For example: for the structural innovation competition, to provide components manufacturing points, model assembly notes. Mathematical Contest in Modeling offers introductory books, mathematical modeling Algorithms, and more. In addition, ANSYS, ABAQUS and MALTLAB and other software orientation are offered.

3. Platform Development

Currently, the mainstream development path is for IOS and Android to work independently. To develop an APP in this way, you need to use two different development ideas and learn different development languages. In order to ensure the similarity of APP experience, it is necessary to coordinate with each other, and the development cost is high. Integrated Development Environment and Eclipse are both in English and are complex, making it extremely difficult for beginners to get started.

So we're looking for new ways to develop APPS. Using DCLOUD'S HBUILDER IDE, 5 + Runtime enhanced mobile browser engine and MUI framework to develop hybrid apps for IOS and Android using only HTML, CSS3 and JavaScript.

In order to facilitate the promotion of the application, the APP is divided into campus version and public version. The campus edition uses the Wampserver integrated development environment, which integrates Apache server ,PHP environment, Mysql database and phpMyAdmin database visual management tools suitable for Windows operating system. The campus version platform server is installed on the computer connected to the school's local area network. Users only need to connect to the local area network SEU-WLAN to use it. The public version rents Ali cloud servers and uses a Lamp integrated environment, which

differs from Wamp in that the operating system is Linux and users only need to connect to the Internet to use it

4. Conclusion

The development level of higher education is an important symbol of a country's development level and development potential. In order to actively respond to the new round of scientific and technological revolution and industrial transformation, and to support a series of national strategies such as service innovation driven development and Made in China 2025, the state has been attaching increasing importance to the cultivation of high quality talents to improve the multi-dimensional quality and ability of college students. A perfect innovation and entrepreneurship platform is of great benefit to improving students' independent innovation ability. In view of the existing problems, the urban underground space engineering specialty applied the concept of building APP platform to the innovative and entrepreneurial activities for the first time, and put it into practice, and constructed the school's first relatively perfect management platform for innovative and entrepreneurial activities, integrated news push plate, competition plate, laboratory plate and online classroom plate four major plate, rich in content, complete function. The establishment of the platform has improved the enthusiasm of students and the management level of the college, and also provided an innovative idea for other colleges and universities.

Acknowledgements

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