

Modelling and Practice of Penetrating Applied College Personnel Training Based on National Innovation Program

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Abstract: The National Innovation Program plays a leading role in cultivating students' comprehensive ability. In this paper, based on blended teaching method and application-oriented university personnel training mode, the model of penetrated cultivation of talents is constructed and practiced among 3 years. BP neural network model is adopted to evaluate the satisfaction of companies employing graduates joined in this program. Results indicate the proposed model is flexible to be generalized.

1 INTRODUCTION

The Ministry of Education launched the National Innovation Pilot Program for College Students in 2007, and promoted the implementation of the National Innovation and Entrepreneurship Training Program for College students (referred to as the "National Innovation Program") throughout the country during the "12th Five-Year Plan", which has been implemented for 15 years. In terms of Fujian Province, 1061 national college student innovation and entrepreneurship training programs were established in 2021 (Fujian province in 2021 the national college students' innovative undertaking plan annual progress report, 2022), and nearly 6,000 college students participated in the national innovation program in 2021 alone. The implementation of the plan has fostered a batch of seeds of innovation and entrepreneurship, incubated a batch of "mass entrepreneurship" enterprises led by college students, and forged a new force of young people who dare to venture and create. It can be said that the National innovation Plan is an important measure of China's innovation-driven development

strategy and building a country with strong human resources.

Under the background of "mass innovation and entrepreneurship", the cultivation of innovation and entrepreneurship ability of college students has been elevated to a new height. In 2015, The State Council issued the Implementation Opinions of The General Office of the State Council on Deepening the Reform of Innovation and Entrepreneurship Education in Institutions of Higher Learning (No.36 [2015]), which pointed out the reform direction of colleges and universities focusing on innovation and entrepreneurship education and training relevant talents. In 2021, it issued the Guiding Opinions of The General Office of the State Council on Further Supporting College Students' Innovation and Entrepreneurship (No.35 [2021] of the State Administration of Development), which again called for deepening the reform of innovation and entrepreneurship education in colleges and universities, and required that innovation and entrepreneurship education should run through the whole process of talent training. College students' innovation and entrepreneurship is the main force of

innovative talents in China. Therefore, the innovation and entrepreneurship education in colleges is given a higher mission. Under the social background that entrepreneurship, especially high-tech entrepreneurship, is becoming more and more important, application-oriented colleges and universities undertake the heavy responsibility of conveying more high-quality and adaptable talents to the society according to different educational positioning (Song, 2021). However, according to the survey results, the following conditions exist in the implementation of national innovation plan in application-oriented colleges and universities:

(1) Project quota and training demand is not equal

The quota of national innovation plan is mainly distributed, which is uniformly planned and distributed by the competent department of education. According to survey results, compared with research-oriented universities, especially those with "double first-class" construction, local application-oriented universities have certain differences in the number of approved national innovation plan projects and the final support funds, which is difficult to meet the needs of students for innovation and entrepreneurship training.

(2) Mismatch between access to resources and willingness to start a business

Applied on the two sides of a project in colleges and universities in recent years entrepreneurship class on developing rapidly, but compared with the traditional research-based universities, restricted by platform, teachers and so on, applied universities when KaiZhanGuo chong plans available external resources is less, and the actual higher innovative entrepreneurial enthusiasm, conversion rate of science and technology and entrepreneurial success rate does not match.

(3) Cultivate "entrepreneurial talent" cognitive misunderstanding

UNESCO has stated that "Entrepreneurship education, which aims to develop individuals with pioneering spirit and ability, is equally important for salaried individuals." However, the number of innovative projects approved in national innovation projects is far greater than that of entrepreneurial projects, which reflects a common misunderstanding: entrepreneurship education refers to entrepreneurs who set up their own enterprises, only for a few students with entrepreneurial awareness and ability, and the benefits of entrepreneurship training are narrow (Song, 2021).

In order to make up for the above problems, make use of the national innovation Program to

support the training of professional talents and expand the benefits of students participating in the training, this paper proposes an infiltration talent training model based on the national innovation program. The national innovation program project "She Silver Ware" (No. :201910395024S) made the first attempt, and further applied the model to more than 20 national innovation plans, provincial and university level college students' innovation and entrepreneurship projects established by 2022 after the harvest. At the same time, a variety of practical training camps and practice lecture halls were created to further cultivate talents, incubate projects and help project improvement. Through the comprehensive penetration of the talent training model to create a perfect echelon of students, for the training of innovative and entrepreneurial ability of high-level composite quality of talent breeding a fertile ground.

2 THE PENETRATING TALENT TRAINING MODEL BASED ON NATIONAL INNOVATION PROGRAM

(1) Project incubation by Blended Teaching Method

Through the online courses recorded by the teaching team and the hybrid online and offline teaching methods, the online teaching and offline guidance methods are carefully designed, which innovatively guide students to think about the project from the perspective of innovation and entrepreneurship (Xie and Shu, 2021). At present, three rounds of implementation have been carried out, and over 35,000 study and reviews are recorded as shown in Figure 1. After the application of blended teaching method, several excellent projects have been incubated, which will be described in detail in the following parts as case studies.

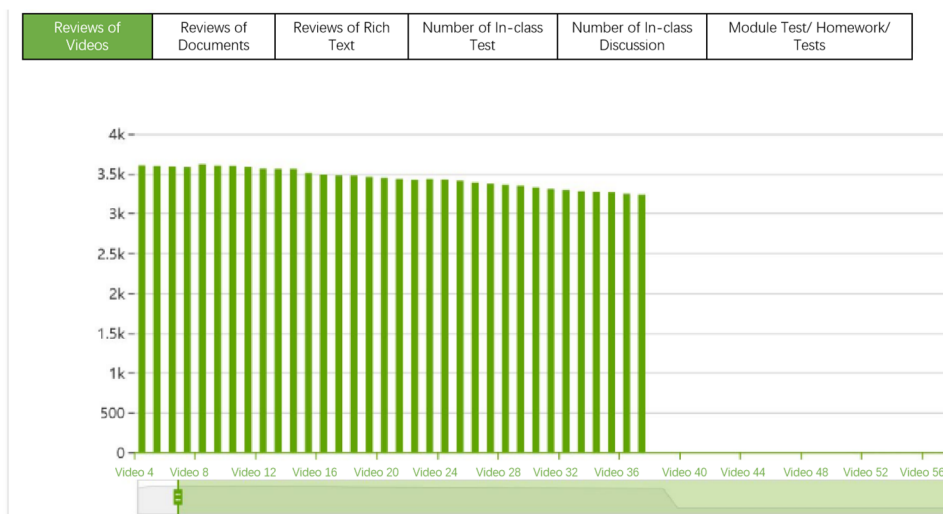


Figure 1: Online Study Information

(2) Specific implementation of the project

After project approval, according to the completion requirements of each project, it is necessary to formulate the project implementation plan according to the time, so as to facilitate the implementation of the infiltration talent training mode based on national innovation project as shown in Figure 2. Under the guidance of instructors, the project leader to allocation of project tasks, according to the plan from the innovation, the operating problems and promote the ground level

respectively formulate the subtasks and child tasks completed time nodes, and set up the subtasks.

In the process of project implementation, the project manager is mainly responsible for project progress control, and the project instructor is mainly responsible for the quality control of project results (Liu et al, 2018), training students' innovative and entrepreneurial thinking and ability, and paying attention to the introduction of external resources, and training students' ability to actively explore resources.

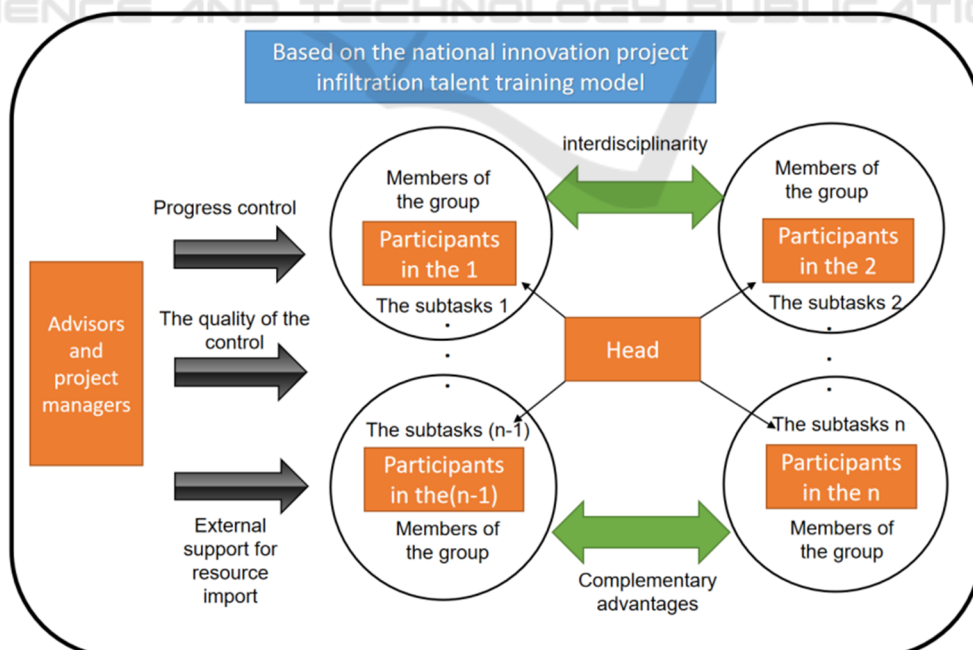


Figure 2: Infiltration talent training model

3 THE PRACTICE PROCESS OF PENETRATING TALENT TRAINING BASED ON NATIONAL INNOVATION PROGRAM

(1) Project practice process

Taking the national innovation program project "She Silver Ware" (No.: 201910395024S) approved by Straits College of Minjiang University in 2019 as an example, the project incubation began in July 2018, and the feasibility verification of the project was completed in September 2018. At the same time, team members joined the incubation camp for training and wrote the project application. After the project was approved, the project leader negotiated with the advisor and divided the task into the following four groups based on the characteristics of the venture project and time planning. The specific organizational structure and division of personnel are shown in Figure 3:

- **Project background investigation**

Each project has its own unique market characteristics, and first-hand information obtained from field research is the best source of information to make a judgment about the project's prospects. Therefore this project participated in human tasks in the team marketing professional leader, through the design, delivery and recycling questionnaire and analysis of data, according to the different consumers have different consumption demand, the project is to develop a short-term and long-term development, sales and marketing strategy, and innovative high quality according to the residents of Fujian tea set preferences, Introduction of famous local tea factory, the first step in the door sales, the second step back experience, the third step, to discuss cooperation way with tea party win-win agreement on sales, and hui YuanYan tea research institute of science and technology to achieve the first successful cooperation, with the intangible skill support and good quality products, success with its influence to scale up.

- **Innovative development and design**

Under the policy baton of "innovation leads entrepreneurship", the level of innovation ability recognized directly determines the vitality of entrepreneurial projects. Therefore, according to the needs of the project, a technical publicity and skill training team was specially set up, and the leader of the National Innovation Plan was appointed as the leader. After recruiting talents, through information

acquisition and research, the innovation plan was finally formulated as follows: The unique process is adopted to combine the She minority customs with modern fashion, add the distinctive atmosphere of The Times and primitive She minority elements, and integrate the Phoenix totem of She minority with the auspicious cloud element into the silver ware, which means auspicious. The bold attempt of cross-border skills, aiming at innovation and artistry, to upgrade the products, and the appearance of the original silk Mosaic skills and silver blue burning skills of Yanjing Eight Jue; In terms of materials, it is integrated with such intangible cultural heritage techniques as "Fuzhou lacquerware Decoration". Enhance the aesthetics and practicability of the product.

- **Project promotion and implementation**

Entrepreneurship programs require participants to start a business in order to train participants to be creative. The content covered in this section is more, in funds, manpower, and with the influence of the cases, the team from carry on intangible cultural heritage features, from precision for poverty alleviation, early to set up a small studio start hatching projects, and in turn after the minjiang college recommends international college and fuzhou lacquer art industry professional technology institute signed a cooperation agreement, And gradually signed strategic cooperation agreements with Luoyuan County Huokou Fuhu She Village, Ningde City Jinhan Township and Huiyuan Yancha Science and Technology Research Institute to establish a long-term cooperation mechanism.

- **Logistics services**

Because of the project is based on the intangible material cultural heritage inheritance and precision for poverty alleviation, is closely related to social livelihood of the people, can foresee this project on the long-term development has a certain social public welfare nature, this project in advance the layout in this respect, by countries and members of the program design background project to preach and to conduct lectures for group leader, Participated in the exhibition of industrial achievements of Fujian university students organized by the E-commerce Branch of Fujian June 18 Collaborative Innovation Institute and the Internet Innovation Research Center, a think tank of Fujian University Characteristics, as well as the exhibition of scientific and technological innovation achievements in Fuzhou Science and Technology Week. Future projects can be further strengthened to reflect the social responsibility of the project and its members.

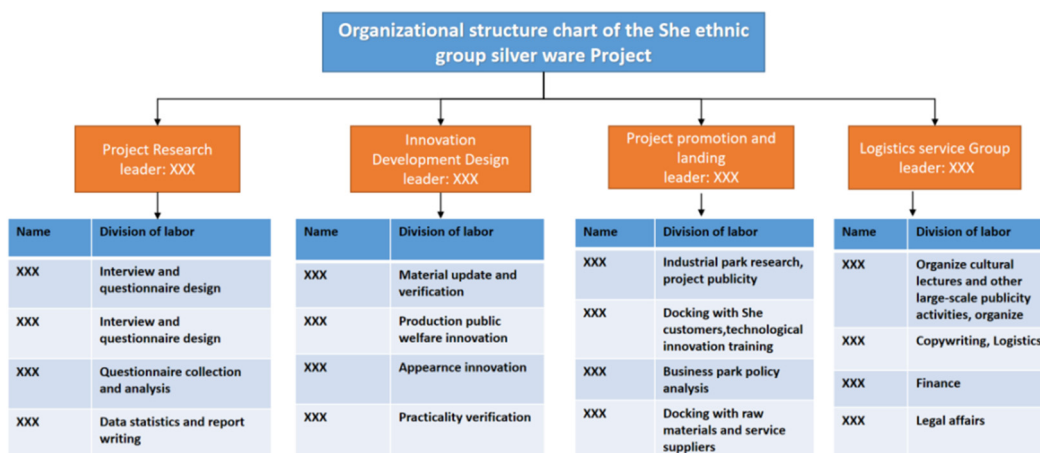


FIG. 3 Project Organization Structure

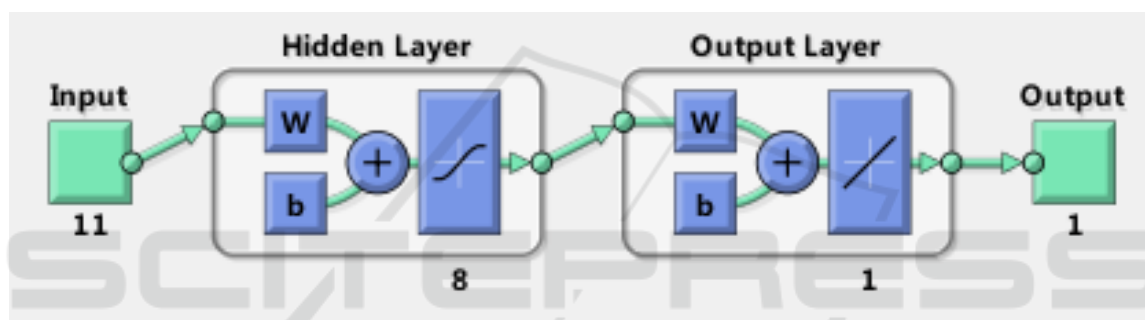


Fig.4 Artificial Network Model for Evaluation

(2) Training the comprehensive ability of students participating in the project

● **Cultivate students' comprehensive ability**

While carrying out innovative research, project members from multiple disciplines independently set up task teams to write papers and appearance patents according to the R&D content they undertake, write business plans and make PPT according to professional characteristics, and make plans to participate in road show practice and project publicity for many times. The comprehensive quality of students has been greatly cultivated by the process of many aspects of practice.

● **Support for students' future plans**

Through participating in this project, the core members of the project ranked top in the comprehensive evaluation of the class, and won scholarships and various honorary titles; Annual flexible introduction of this project senior students, alumni, to participate in the project e-commerce sales, she silver craft apprentice and publicity, finally combined with the training plan, cultivating

she silver craft 800 person-time, absorb the school design talent 10 people, she silver craft long-term learning cooperation students 80 people.

(3) The role of the instructor

In terms of providing resources, the instructor mainly plays the role of matchmaking, and can arrange students to make plans and implement resource docking by themselves. Such as this project will be the middle customer orientation is the famous tea factory, instructors and the cooperation of the tea factory, after docking arrangements for the student and the tea factory director to specific negotiation, drafting contracts and eventually sign a contract, this kind of practice process to teach them to fish, to guide the teacher to provide resources to students, in really play a role of resources in the process of exercise the students' comprehensive ability.

In terms of cultivating students' ability to actively explore resources, the instructor is mainly responsible for pointing out the resources that are still lacking in the current project for students, and the students take the initiative to investigate and

obtain resource information, and negotiate with the instructor to finally obtain resources. For example, this project needs to participate in a variety of marketing presentations to promote. After the instructor points this out to the students, the students will conduct research on the presentation methods and industry exhibitions according to the field of the project, and finally determine the presentation methods and industry exhibitions to participate in after consultation with the instructor. This kind of practice process is the process of teaching people to fish. The instructor controls the direction of resources exploration, and the students collect materials and identify information. In this process, the instructor becomes an assistant rather than a superior instructor, and really gives play to the initiative of the students.

(4) Training Model Output Evaluation

The BP artificial neural network model is adopted, as shown in figure 4, to evaluate the output of proposed training model. 20 companies who took the graduates from Minjiang University who participated in the project are involved in this investigation (hereby group A). In addition, a control experiment is designed among those who take the graduates from Minjiang University who didn't join in the project (hereby group B). The learning ability, communication ability, cooperation ability and the sense of responsibility are evaluated in this investigation. Results show group A returned 95.8% of satisfaction, while group B only returned 89.2% of satisfaction.

4 CONCLUSION

Excellent national innovation projects are not only highly innovative, but also have good feasibility and continuity. Under the efforts of various parties, they should be able to comprehensively and deeply cultivate students' comprehensive abilities. This paper proposes an infiltration talent training model based on the National Innovation Program. Multiple teams are built with participants of the National Innovation Program as the core members, which increases the number of people actually participating in the training from 5 to about 20, expands the benefit coverage by 4 times, and attracts students of multiple grades to participate in the project. It not only enhances the innovation and vitality of the project itself, but also plays a strong supporting role in the integration of special creation, student team construction and support for the future development of students. The practice proved that most of the

junior students who participated in this project excelled in the subsequent training and practice of innovation and entrepreneurship projects. Therefore, it proved that this training mode could be further promoted and play a role in the training of application-oriented college talents by taking advantage of the National Innovation Program.

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