

Cultivation and Improvement of Undergraduates' Innovative Practice Ability

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Abstract

"Agricultural education is not practice can not get the true meaning, not test can not explore the fine and subtle", adhering to the hebei agricultural university undergraduate talent training philosophy, the school of undergraduate innovation practice ability training objectives continue to optimize. "Innovation means development, and innovation means the future." When professional development moves towards "smart" water conservancy, we are required to deploy the emerging remote sensing, mobile Internet, cloud computing, Internet of things and other technologies in the agricultural production site and agricultural production environment. In this context, this paper analyzes the effectiveness and importance of cultivating and improving the innovation practice ability of undergraduates through the tutorial system, college students' innovation and entrepreneurship competition, etc. The purpose is to provide reference and optimization scheme for the cultivation of innovative professionals.

Keywords

Undergraduates; Water conservancy for agriculture; Innovative practice ability; Tutorial system; College students innovation and entrepreneurship competition.

1. Introduction

Innovation has always been an important force driving the development of a country and a nation. Implementing an innovation-driven development strategy is to promote comprehensive innovation with technology innovation at its core. In today's society, science and technology and talents have gradually become the decisive factors for improving overall national strength. In order to help the realization of the Chinese dream, China urgently needs a large number of innovative comprehensive technical talents. As a starting point for talent training, colleges and universities must start from the cultivation of innovative ability and professional practice ability. Undergraduates should continuously improve the training and training of innovation consciousness, make good use of the practical resources given by the school, so as not to lose on the starting line, and lay a good foundation for work or deeper learning.

2. Undergraduate Students' Innovative Practice Ability Improvement Process Under the Tutor System

The tutor system promoted the innovation of college education in Hebei Agricultural University, and built a bridge for undergraduate education and postgraduate education, helping students to eliminate the lack of research ability and practical inquiry ability of traditional undergraduate education, and combining theoretical knowledge with research experiments. Students have a precise position on what they should do and what they can do.

2.1. Innovate the Practical Teaching System and Strengthen Students' Practical and Innovative Abilities

In order to improve students' ability of independent innovation, the college adopts the undergraduate tutor system to supplement the undergraduate's professional knowledge. Students can have a certain understanding of the teacher's current research direction through the introduction of the professional teachers in the college, and understand the Institute. The professional branch that the major can carry out, according to their own interests, choose the research direction that they like, the teacher will divide the tasks in the hands of a small part of the task, and the undergraduate students will assist the graduate students to complete the work. After a certain understanding of the content, the teacher can help the undergraduate students to design a part of the small practical experimental tasks.

Relying on the "Twelfth Five-Year" national grain high-yield science and technology high-yield project and other topics, pot experiments were carried out in the school, such as water and salt stress experiments, water and salt stress experiments of mung bean, root-filling experiment of mung bean, and water-fertilization coupling experiment of winter wheat. Throughout the course of the experiment, undergraduates participated in the design of the initial experimental program, how to conduct daily management of the experiment, how to measure various growth and physiological indicators, and learn to use measuring instruments such as chlorophyll meter and photosynthetic apparatus. During the experiment, the instructor will supplement the knowledge of the design according to the problems encountered in the current experiment, and open a professional small class at any time and place. For example, how to use the ring knife method to determine the field water holding capacity and the effect of water stress on root growth.

In the off-campus teaching, the undergraduate students who participated in the tutor system went to the experimental stations of Xinji, Xinle and Xingtai Julu in Shijiazhuang to assist the graduate students in completing the tasks of soil borrowing and measuring indicators in the experimental field.

In the later stage of the experiment, undergraduates designed five small experiments by studying the previous experiments, such as the effect of water and salt components on the germination rate of cockroaches, the recurrence experiment of sorghum seeds under excessive water and salt treatment, and the treatment under salicylic acid and water stress. The effect of germination rate of jujube, the germination rate experiment of wheat under water and salt stress and the germination rate experiment of wheat under water and fertilizer coupling. Undergraduates play a leading role in designing experiments, managing experiments, measuring relevant indicators, and summarizing experimental data.

2.2. Students' Ability to Improve and Encourage Collaboration Among Students

In the process of tutor system, students are encouraged to share knowledge, and to explore problems that are not understood. The instructor will do the conditions and help for the students to explore the experiment. For example, in the experiment of the influence of water and salt content on the germination rate, many seeds have not successfully sprouted. During this experiment, undergraduates proposed whether some seeds temporarily inhibited seed germination due to excessive salt content or too little water content, but these seeds were also active and not dead. Undergraduate students discussed this issue, consulted relevant papers, discussed the knowledge that they did not understand with graduate students and tutors, and designed a recurrence experiment to conduct in-depth research on the reasons for its non-germination. In this process, students are brought together to share knowledge and skills, share their views on the problem, and explore the experiment through multi-angle and multi-faceted collaboration. Based on the experimental topics carried out, a loose teaching model focusing on students' own inquiry and innovation is completed to accomplish the task. Due to the

comprehensiveness and complexity of the experiment, students who need a variety of knowledge are required to complete the experiment. The members of the experimental group actively share the views on the experiment and the problems found during the experiment, and carry out knowledge transfer and learning to form a unique tutor system. Collaborate to share culture. Promote shared communication among students, improve the collaboration ability and team cohesion of the student team.

2.3. The Effect of the Tutor System

The teaching mode of the tutor system breaks the traditional classroom teaching. The teacher unilaterally carries out the textbook teaching mode. The students themselves discover the insufficiency of their own knowledge in the experiment, develop the problem of discovery, solve the problem themselves, and ask the teacher to ask questions. Content solidification plays a role in supplementing knowledge. Breaking the traditional experimental teaching, the model is carried out step by step according to the experimental scheme, the students lead the problem, the students discuss the problem, and the experiment is used to verify the process of guessing the problem.

In the process of participating in the subject experiment, we should know in advance the work that the graduate students should assist the teacher to complete, supplement the professional knowledge, and train the undergraduate students' research ability, inquiry ability and innovation ability through the pot experiment in the school, and further study through the supplement of the off-campus experiment. The mission has a comprehensive understanding.

3. The Process of College Students' Innovation and Entrepreneurship Competition Enhancing Innovation Consciousness and Ability

In order to improve the innovation ability of engineering college students, agricultural colleges must first cultivate the innovation consciousness of engineering college students. Only students themselves realize the importance of cultivating innovative ability to take the initiative to learn skills, practice and dare to innovate. At present, a number of innovative and entrepreneurial competitions for college students in different fields, different majors and different levels have been launched nationwide, such as "Internet +" National College Students Innovation and Entrepreneurship Competition, "Creating Youth" College Entrepreneurship Competition, and "Challenge Cup" National College Students Extracurricular Academic Science and Technology Works. In order to allow students to actively participate in the competition, the school has more opportunities to continuously improve the works through the guidance of professional teachers. For those students with innovative ability and entrepreneurial intentions, the "Golden Ideas" Creative Entrepreneurship Competition was established in the early stage of the large-scale competition. The "Passion" competition and other creative entrepreneurship incubators in the school. Under the background of actively guiding undergraduates to participate in the innovation and entrepreneurship boom, undergraduates should seize the opportunity to implement creative ideas into innovative and entrepreneurial plans, and establish a sense of innovation that dares to do boldly and boldly.

3.1. Undergraduate Students' Innovation Ability under the Guidance of Professional Teachers

The college actively builds an innovative and entrepreneurial platform for students. Under the guidance of the teachers and professional instructors, the undergraduate innovation and entrepreneurship projects are continuously improved. In the "National Agricultural Comprehensive Development High Standard Farmland Construction Plan", it is required to vigorously develop water-saving irrigation in the planning of high-standard farmland construction. Relying on the laboratory and experimental equipment in the school,

undergraduates independently developed a new type of seepage irrigation pipe with slow release, anti-blocking and uniform water discharge, and carried out related experiments on its water-saving efficiency, anti-blocking performance and uniformity of water output. Zhanxi Intelligent Irrigation Technology Co., Ltd. was founded on the basis of products, and won the third prize of Hebei Province in the 5th National "Internet+" College Students Innovation and Entrepreneurship Competition.

3.2. Derivation of Undergraduate Social Practice Opportunities in the Context of Innovative Entrepreneurial Competition

In the early stage of project preparation, extensive market and social research is required. Through the use of holiday time, follow the mentor to the area of Julu County, Xingtai City, Hebei Province, Xiong'an New District of Baoding City, Baiyangdian District of Anxin County, etc. to investigate the current status of farmland irrigation methods, regional development status and farmers' acceptance of new irrigation methods. So find the pain point and start the analysis of the project market prospects.

General Secretary Xi Jinping pointed out: "Society is a big classroom. Young people must grow into the pillars of the country. They must read thousands of books and travel thousands of miles." In practice, the young students should actively participate in the study of theoretical knowledge. social practice. The essence of undergraduate innovation practice is that innovation can facilitate the better development of the profession, and through this way to provide conditions for the improvement of the people's better life. Therefore, in the practice of professional innovation, we must use the scientific and technological innovation to promote professional development, use professional development to improve people's life, and implement innovative ideas with real and effective actions.

3.3. Innovation and Entrepreneurship Competition Improves the Comprehensive Quality of Undergraduates

All kinds of innovation and entrepreneurial competitions currently held in the country require the project to submit a completed business plan, including project background, project significance, project development prospects, market and competition analysis, marketing strategy and financial management, risk analysis and prevention. By writing such proposals and on-site defenses, undergraduates can fully understand the entrepreneurial process, entrepreneurial opportunities and risks, exercise the undergraduate thinking, improve teamwork and on-the-spot resilience. And through the competition, the truly creative ideas will be blossomed, and the application for patents or writing of papers will be transformed into practical results; the students with entrepreneurial intentions will recruit angel investors for their projects, so that the undergraduate entrepreneurial ability can be effectively improved.

4. Conclusion

Under the background of "mass innovation, entrepreneurship", undergraduates, as the main force of the youth of the new era, must clarify that we are the vitality of national innovation, the orientation of the hope of scientific and technological development, and actively and innovatively through the platform of innovation and entrepreneurship built by schools and colleges. Improve self-innovation and practice ability, aim at achieving self-ideal and achieving social value, lay a good experimental foundation in the undergraduate stage, exercise the basic ability of innovation and entrepreneurship, pre-set the transition period for in-depth study of graduate students, and make a road exploration for employment and entrepreneurship.

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