

## Research on Industrial Demand-Oriented Practical Teaching Mode

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**Keywords:** Industrial-demand oriented; Case; Practical teaching model; Theoretical reference; Practical Support

**Abstract.** By analyzing the main problems of agricultural colleges and universities in the practical teaching presence, combining with the typical case in our school, we aimed to design and implement practical teaching program to provide theoretical reference and practical support for our agricultural colleges and universities to train a large number talents who meet the needs of employers.

### Introduction

With the rapid development of higher education in China, the expansion of the scale of higher education, college students' difficult employment problem is becoming more and more serious, and the agricultural colleges' graduate employment more difficult [1]. From the research of employers, we can find that practical experience and practice ability become two important scale of employers to screen graduates [2]. Employers generally believe that today's college students are poor in practice and study ability, compared with hiring graduates, they prefer to have practical experience people [3]. For difficult employment problem of College Students in Agricultural Colleges, More and more colleges and universities have deeply realized the importance of practice teaching and the urgency of the change the original practical teaching mode.

### The Main Problems of Practical Teaching

Educational goals are not clear and lack accurate positioning. Agricultural Colleges and Universities closely linked with the socio-economic development and production practices. Talents trained to come into agricultural production line, their practical ability is essential. Practical application of agricultural science features [4] determines the educational agricultural institutions should pay more attention to practical ability, to improve the quality of practical teaching.

From the point of view of teachers, with the continued expansion of University Teachers, experiment teachers team shows the trend of high level education, but because these young teachers to the podium directly after graduating from school, lack of practical experience [5]. However, the practical skills of teachers is directly related to the effects of the practical teaching. Especially the promotion evaluation of teachers is mainly related to scientific research projects and papers published, which makes teachers have to devote a considerable part of the energy in scientific research and results in the neglect of the cultivation of students' ability and practical guidance.

From the point of view of teaching evaluation, due to the delayed effect of practical teaching [6], the final outputs and the expectation goal require a relatively long process, and some may be reflected even when students go to work after graduation and cannot be unified evaluated. The problem are emphasis on theoretical curriculum evaluation, ignoring the practice teaching evaluation, the lack of practice teaching evaluation methods and specifications[7]; mainly shows in

appraisal practice teaching mode is single, practical teaching often attached to the theory teaching, the original appraisal system separated from training objectives, students lacking sufficient attention. Like a student's course paper (design), thesis (design), as well as extra-curricular activities in science and technology, social practices, they basically are mechanized teacher assigning tasks. Students complete the task but lack of guidance on the process of practice.

From the point of view of fund, since the college increase enrollment, the students' population soared, and school construction funds mainly put in infrastructure, not to get enough money to purchase and update teaching facilities [8]. Even funding provided mainly are spend for the construction of the central laboratories and engineering centers, which are generally only used to carry on verification experiments of theory and principle; the device cannot be used repeatedly. Although some companies established training bases, they often only used for students to visit and cognition practice not for real training. Many practical teaching activities are difficult to carry out quality and quantity because of the old facilities and simple technology [9].

From the point of view of the school openness, the majority of our agricultural colleges and universities have become accustomed to closed teaching mode self-discipline development as the center. They tend to cooperate with some enterprises to solve technical problems from the perspective of science and technology, narrow in combined respects, but the enterprises do not participate in the schools training process, just providing small support [10].

### **Discussion in Industry Demand-oriented Practical Teaching Model**

**clear the educational goals and industry demand.** According to the teaching rules and procedures, to develop production, construction, management and service first line need high-quality skilled professionals, the first thing is to scientific locate training objectives, determine to train talents for what profession (or industry), clear the demand of disciplines corresponding industry. Each teaching unit should go deeply into the production practice line to carry out the employment survey, through the in-depth communication with managers and employees to know the specific requirement of employers to choose and employ employees, especially to understand the content of the pre-service training for new employees, employers chosen and employed. When necessary, first line teachers can adopt the way of short term substitution to develop practical teaching content and form. Take practice teaching's important means of questionnaire survey for example, its design should focus on the following three aspects:

(1)The graduates should have what kind of practice ability, according to the importance.

(2)The condition of graduates have actual practice ability, according to the actual performance or perception.

(3) According to the enterprises requirement and graduates demand in work, colleges and universities should rethink to strengthen what practice teaching or training. For example, while the water conservancy engineering college in our school investigate and analysis the talent demand In water conservancy industry, they emphasize key point stand out, in-depth analysis, long-term tracking, regular visit and investigation of water conservancy industry employers. They aim to know the comprehensive evaluation to graduates' employment ability and quality and the evaluation of teaching effect to the school, gave by employers; and information may influence graduates, such as job requirement, future regional economy or industrial structure adjustment in water conservancy industry. Comprehensive analyzing all research information, and take it as an important reference to determine the personnel training target, to make the personnel training target and program the scientific and reasonable.

#### **Designation and Improvement of Personnel Training Program in Practical Teaching Part.**

Designation and improvement of the personnel training programs, in particular the practice teaching training program should depend on the knowledge, ability and quality which are required in one position. It is supposed to combine with practical teaching, change the current "textbooks and classroom teaching is the first" practical teaching training model, make a index system to evaluate students' occupational qualities. Apply open education mode, inviting employers to participate in personnel training schools, especially the teaching plan, teaching staff management, teaching

quality management and teaching evaluation, training base and students' management. For example: Food Science college of our school starts from food science and reality of agricultural products processing industry to train students' technical skills, job capacity, research and development ability, forming a new practical teaching model.

**Establishment and Improvement of the Internal and External Training Base.** To implement industry demand oriented training mode, productive training practice base is essential, which is ever a "bottleneck" restricting the reform of college personnel training mode. To solve the problem, it necessary to go the university-enterprise cooperation and the campus off-campus double-track construction road. First, we must strive to build the school of training base. The so-called campus productive practice base is planned according to the factory pattern, the building of the campus factory accorded to the practice base building, to provide a real production environment for students in training to get the actual jobs need knowledge and skills. For example: the food science college of our school changed the former closed management operation mode but open to students and teachers, giving full play to the role of the laboratory, to improve its efficiency and effectiveness; turn the agricultural products Laboratory (shop) into experimental bases, research and innovation base and training base, and constantly improve students' comprehension of theory knowledge and ability to apply the theory, so that students more responsive to the needs of society. Second, we should make great effort to construct off-campus practice bases to meet needs of variety professional field. Students' practice teaching base are combined with employment base, synchronous construction, developing mode of "trinity" of employment - student internship, graduation design and employment.

**Organization and Implementation of Each Practice Teaching According to Industry Demand.** According to the talent training scheme to implement each link of practice teaching, in the real or similar positions environment, we carry out the working practice and promote the general practice in accordance with the requirements of post professional standards. Implementation of professional skill, job knowledge ability quality cultivation scheme design, until the graduates go to employment, jobs are as the core.

#### (1) Experimental Teaching

On the one hand, under the premise of ensuring students' basic experimental skills training, we should appropriately increase the proportion of comprehensive design experiment to train abilities of independent design independent thinking of students in the experiment. On the other hand, the past experimental instructions detailed experimental procedure practice should be changed. Instead, heuristic, interactive teaching methods should be taken, encouraging students to design their own experimental procedures, arrangements for experimental operation, innovative experimental methods, experimental summarize the experience guiding students to identify problems and gradually increase to recognize, analyze and solve problems initiatively. In addition, with the popularity of digital, information, networking, teachers should use multimedia tools, applying accumulated experience in teaching to video experiment teaching. Students are required to watch the video before each experiment to understand the experimental principle and experimental requirements, in particular the process of experimental operation. Students will get a great impression of the experience. By teaching video, experimental teaching methods, diversified multimedia courseware teaching, a live demonstration, teacher-student interaction, etc. we make sure students to grasp the knowledge quickly and firmly.

#### (2) Curriculum design

Curriculum design is an important part of teaching practice, a specialized training integrated use of the course and other related elective courses of theoretical knowledge or practical production knowledge after theory course. It aims to deepen the understanding of the theoretical knowledge, to cultivate students' independent in solving practical problems in the curriculum field and scientific rigorous work style, to master the engineering thinking way and the necessary basic skills, such as accessing to literature, engineering design and mapping, network application software tools, prepare design specifications, special investigations, and other capabilities. For example: Environmental Science Department of Agronomy in our school, according to our hospital professional basic skills

needs to break the boundaries of the course. They integrated practical teaching content and overall planned all aspects of practice teaching.

### (3) Practice and training link

On the basis of schools and external school training infrastructure, we should vigorously promote the general simulation practice, job training. According to the professional needs of employers and society, we need to repeatedly train basic skills simulation of analog conducted, organized and planned. It is imported to focus on closing to the production, technology, professional environment, the real process, so that students can apply what they learn in school. For example: The Applied Chemistry Department of Basic Science college in our school cooperates with several biotechnology company, to establish a long-term practice of school-enterprise cooperation, training base through teaching, learning and research combined, etc. Some students in the relevant were employed successfully after the internship.

### (4) Graduation Project

Students apply the professional knowledge and skills to independently complete a graduation project (thesis) after completing the various courses. It is not only the comprehensive evaluation of student learning, but also makes students associate theory with practice, show their practice and innovative ability. Therefore, students should train themselves to practice a comprehensive, integrated graduation project (thesis) according to professional training objectives defined business requirements, combining with production or social service practical problems. Especially in the post-graduation project, about the need to solve practical problems on the job, under the guidance of both lead of schools and enterprises teachers, students prepare good graduation project (thesis), and develop a comprehensive analysis and practical skills.

**Building Bilateral Teaching Team.** The construction of professional adjustment integration, design and implementation of the course and its content and productive practice bases have to rely on this teaching team to complete. The so-called bilateral structure, is not only to focus on improving the "double" the proportion of school professional teachers, more importantly, is to employ a large number of well-known enterprises in the field of industry professionals and craftsmen to school as a part-time teacher, progressive increasing the proportion of part-time teachers, and gradually forming a mechanism of practical skills courses mainly by part-time teachers with a correspondingly high level of skill taught. In this way, we can make school teaching closely combines with production practice, rapidly apply the leading edge process of technology.

**Perfect Practice Appraisal System, Improve Their Overall Quality.** To achieve the supposed results, there must be scientific and rational practice assessment system. In Assessment of practical ability, for small production in scientific and technological activities ,social surveys, scientific propaganda activities, scientific research and extracurricular activities, we may give appropriate credit according to size of the workload and the level of quality, so that we can provide system protection for culturing innovative spirit and practical ability of students. The full implementation of comprehensive general simulation training program, the training step by step into a plurality of different stages according to student ability, arrangement of different training content in different stages, set up different training place, to organic combination of achieve different disciplines, different professions, different courses , combination of classroom teaching, laboratory teaching and training, and at the end of training, training students are supposed to be evaluate and get qualifications.

## Conclusions

Therefore, the implementation of practical teaching mode to industry demand-driven is good for integration of practice teaching objectives and employer demand, it can help students to shorten the run-in period with the employers. Meanwhile, due to the practice of teaching training evaluation point mainly according to the employer based on pre-service training, the period of enterprises to train qualified staff can be greatly shortened, the cost of human resources and employment risk are effectively reduced. For school career guidance, it can help to enrich the content of education, the expand participation side of employment guidance, improve the effectiveness of employment

guidance education, cultivate high-quality personnel welcomed by the business.

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