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# Design and Implementation of Practical Teaching under Modular Teaching Reform—A Case Study of Tea Production and Processing Technology Major

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**Abstract:** The major of Tea Production and Processing Technology features dual attributes of skill inheritance and industrial application. Its traditional practical teaching has long been plagued by problems, including fragmented teaching content, superficial skill training, and simplistic evaluation methods. Based on the philosophy of modular teaching, this paper conducts a systematic discussion on the reform paths of practical teaching for this major. By reconstructing a progressive skill module system in accordance with the industrial chain logic, adopting the integrated teaching mode of theory and practice, developing multi-level practical teaching resources, and establishing a module-based process assessment mechanism, this study aims to realize the precise alignment between teaching content and job requirements.

**Keywords:** Modular teaching; Tea production and processing technology; Practical teaching; Integration of theory and practice; Process evaluation

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## 1. Introduction

Higher vocational education undertakes the important mission of cultivating high-quality technical and skilled talents for regional industries. The quality of practical teaching directly determines whether talent cultivation objectives can be achieved. As a typical agriculture-related major, Tea Production and Processing Technology relies heavily on real or simulated production scenarios for core competency training. Students need to comprehend technical essentials and form stable muscle memory through repeated operational practices. However, the practical teaching of this major generally follows the disciplinary curriculum framework at present. Various practical training sessions are isolated from one another, and theoretical

courses are out of sync with practical training. Consequently, even after completing full-time on-campus studies, graduates struggle to adapt to frontline production positions rapidly. As a competency-oriented and task-driven teaching model, modular teaching provides a feasible solution to the above problems. Taking Tea Production and Processing Technology as the research object, this paper systematically elaborates the design logic and implementation strategies of modular teaching in practical teaching, so as to offer references for the teaching reform of similar majors.

## 2. Core connotations of modular teaching and practical teaching for the Tea Production and Processing Technology major

### 2.1. Core connotation of modular teaching

Originating from the vocational education reforms in the 1960s, modular teaching is guided by job competencies, takes teaching modules as carriers, and focuses on competency development. It breaks the traditional teaching mode of separate theoretical lectures and scattered practical training. In accordance with the core competency requirements of professional posts, teaching content is integrated into multiple independent and interconnected teaching modules. Each module has clear teaching objectives, specified teaching contents, practical tasks, and evaluation criteria. The modules are mutually independent while closely connected, forming a complete teaching system featuring module guidance, task driving, and practical empowerment. Compared with conventional teaching modes, modular teaching has three distinctive characteristics [1].

First is pertinence. Module settings are closely aligned with vocational posts and focus on core job skills, eliminating redundant content irrelevant to practical work, so as to integrate learning with application. Second is flexibility. Module contents and practical tasks can be adjusted dynamically along with industrial and job changes to adapt to industrial transformation and upgrading. Third is practicality. Each module is equipped with corresponding practical teaching activities. Students learn through practice and practice while learning, which attaches great importance to the cultivation of practical abilities and innovative capabilities. This is consistent with the talent cultivation philosophy of vocational education that values professional skills [2].

### 2.2. Core requirements of practical teaching for the Tea Production and Processing Technology major

Tea Production and Processing Technology is an applied major combining theoretical learning, operational training, and professional characteristics. Its practical teaching runs through the entire tea industrial chain, covering multiple links from tea garden cultivation to market circulation, with tea quality inspection as the final segment [3]. The practical teaching is oriented toward the actual demands of various posts in the tea industry, and ultimately targets the practical application and innovative capabilities of students. Combined with talent orientation and job requirements of the tea industry, the core requirements of practical teaching for this major are divided into three aspects.

First, competency adaptation. Practical teaching connects core posts, including tea production, processing, sensory evaluation, inspection, and marketing. Students are required to master key operational skills such as primary processing (fixation, rolling, and drying), refining procedures (sorting, winnowing, and picking), as well as tea appearance and internal quality evaluation. These requirements are in line with the professional skill standards specified in the *Teaching Standards for Higher Vocational College Major of Tea*

*Production and Processing Technology* [4].

Second, industrial synchronization. Practical contents keep pace with the upgrading of the tea industry. Emerging business forms, new technologies, and new processes, such as deep processing of tea, intelligent manufacturing, and green production, as well as brand marketing, are incorporated into teaching. Typical examples include the operation of intelligent tea-making equipment and the development of deep-processed tea products, which cater to the digital and intelligent development trend of the tea industry.

Third, all-round literacy development. Practical teaching not only hones students' professional skills but also fosters their craftsmanship, sense of responsibility, innovative thinking, and teamwork spirit. It aims to cultivate well-rounded practitioners with exquisite professional skills for the tea industry, and fulfill the talent cultivation goal of inheriting craftsmanship and promoting the spirit of artisans [5].

## 3. Significance of applying modular teaching to the practical teaching of the Tea Production and Processing Technology major

### 3.1. Reconstruct the curriculum system and enhance the systematicness and logical relevance of teaching contents

The traditional teaching of this highly practical major is plagued by fragmented knowledge points and disconnection between theory and practice [6]. The introduction of modular teaching enables the integration of scattered skill points into interconnected independent teaching units following the logic of the complete tea industrial chain, which runs from fresh tea leaf picking to primary processing, refining, and finished product packaging. This model breaks disciplinary barriers and links isolated practical training sessions into a progressive skill development chain. The systematic reorganization of teaching contents helps students establish a macroscopic understanding of the whole tea processing workflow, optimizes the overall framework of professional practical teaching, and realizes the in-depth integration of theories and practices within each module [7].

### 3.2. Deepen skill training and accurately meet the core competency requirements of posts

Tea processing technologies update rapidly, and processing standards vary greatly among different tea categories. Modular teaching divides complex processing techniques into multiple assessable and combinable skill modules, making teaching objectives more targeted to post competency requirements [8]. It transforms the extensive, superficial practical training in the past into intensive and refined skill training. Students can conduct repeated intensive training within designated modules and delve into the production techniques of specific tea varieties. This effectively shortens the adaptation period between campus training and enterprise employment, enables graduates to quickly adapt to frontline technical requirements, and improves the matching degree between talent cultivation and vocational demands [9].

## 4. Strategies for applying modular teaching to the Practical Teaching of Tea Production and Processing Technology major

### 4.1. Build a progressive skill module system based on industrial chain logic

The division of modules shall not be a simple split of existing courses, but shall be designed scientifically in accordance with the actual operation process of the tea industry. The training follows the principle of laying a

solid foundation first and then conducting comprehensive training, as well as developing single skills before compound application. The entire practical teaching system is divided into three levels: basic skill layer, core skill layer, and comprehensive application layer.

The basic skill layer covers general contents, including tea identification and sensory evaluation, basic agricultural operations, as well as the use and maintenance of mechanical equipment, laying a solid professional foundation for students [10]. The core skill layer sets independent processing modules for six major tea categories, namely green tea, black tea, oolong tea, white tea, yellow tea, and dark tea. Each module covers the complete operational procedures from fresh leaf treatment to finished product manufacturing, enabling students to independently complete the whole production process of a certain type of tea. The comprehensive application layer focuses on interdisciplinary contents such as tea quality control, deep-processed tea product development, and tea garden operation and management, cultivating students' comprehensive ability to solve practical production problems [11].

The three levels form a ladder-like progressive structure. Students can proceed to the next level only after passing the assessment of the current module. This hierarchical and closely connected module design complies with the objective laws of skill learning, covers all teaching contents, avoids repeated or missing teaching arrangements, and makes the practical teaching system more scientific and rigorous [12].

## 4.2. Implement an integrated teaching mode of theory and practice

After the division of modules, the in-class implementation effect directly determines the overall teaching outcome. The traditional arrangement of teaching theories first, followed by practices, or separating theoretical and practical courses into different semesters, can no longer adapt to the high integration requirements of modular teaching. It is necessary to adopt the integrated mode of theory and practice, arranging theoretical lectures and skill training in the same teaching period and the same teaching space [13].

In the teaching of each skill module, teachers first spend a short period of time explaining technical principles and operational specifications, and then arrange practical training immediately. Students verify and consolidate theoretical knowledge through hands-on operations. This "learning by doing and doing while learning" mode reduces the loss of knowledge from memorization to application. Meanwhile, the roles of teachers and students are redefined. Teachers act as module designers and on-site instructors instead of mere knowledge imparters, while students become the main performers of module tasks.

## 4.3. Develop multi-level practical teaching resources matching the module system

The smooth operation of modular teaching requires sufficient supporting resources. Firstly, the on-campus training bases shall be rezoned functionally in accordance with the divided skill modules. Special equipment and operating platforms shall be equipped for different tea processing modules. For instance, fixation machines, rolling machines, and dryers are configured for green tea processing areas; special withering rooms and baking rooms are built for oolong tea processing. Each functional area remains relatively independent and is connected via reasonable logistics routes to simulate the real production environment of tea workshops [14].

Secondly, professional teachers and enterprise technicians jointly compile modular practical training textbooks, which organize operational procedures, quality standards, common problems, and corresponding solutions with pictures and texts for students' autonomous learning. Meanwhile, diversified online teaching resources are being developed, including virtual simulation operation programs, micro-lessons, and process illustrations for various tea processing techniques. These digital resources expand the time and space scope of practical teaching, make up for the

deficiency of offline training hours, and enrich students' learning channels [15].

### 4.4. Establish a diversified process assessment mechanism based on modules

The evaluation system shall be matched with modular teaching. The traditional mode of determining academic performance by a single final practical exam shall be abandoned. Independent assessment units are set for each module to build a full-process evaluation system. After the completion of each skill module, a targeted assessment is carried out, covering the standardization and proficiency of operational skills as well as students' understanding of relevant theoretical knowledge.

The assessment adopts diversified forms, including on-site operation tests, oral defenses, and work evaluations. This multi-dimensional evaluation system can accurately identify students' weak points in various skill links, and mobilize their initiative to polish professional skills. It enables teaching evaluation to play the role of adjusting teaching arrangements and guiding teaching orientation.

## 5. Conclusion

Modular teaching creates an effective reform path to improve the quality and efficiency of practical teaching for the Tea Production and Processing Technology Major. The scientific construction of module systems, the reform of integrated theory-practice classrooms, the systematic development of supporting teaching resources, and the establishment of diversified evaluation mechanisms fundamentally reverse the drawbacks of scattered skill training and ambiguous evaluation criteria in traditional practical teaching.

Nevertheless, the modular teaching reform is a long-term project. Continuous efforts are still needed in aspects such as teachers' competency improvement, in-depth school-enterprise cooperation, and dynamic module updating. In the future, further exploration shall be conducted on the flexible combination of modules and in-depth application of digital resources, so as to make practical teaching the core driving force for students' vocational competency development and continuously deliver qualified technical and skilled talents for the high-quality development of the tea industry.

## Disclosure statement

The author declares no conflict of interest.

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