

# Development and Application of Workbook Teaching Materials – Taking the Curriculum Construction of Pharmacy and Traditional Chinese Medicine Pharmacy in Higher Vocational Colleges of Pharmaceutical Specialty Group as an Example

Jianwen Chen<sup>1\*</sup>, Jianbing Yang<sup>2,3</sup>

<sup>1</sup>Honghe Health Vocational College, Mengzi 661199, Yunnan Province, China

<sup>2</sup>Yunnan South Yunnan Central Hospital, Mengzi 661199, Yunnan Province, China

<sup>3</sup>The First People's Hospital of Honghe State, Mengzi 661199, Yunnan Province, China

\*Corresponding author: Jianwen Chen, 540506922@qq.com

---

**Abstract:** In higher vocational colleges, professional construction is the core, curriculum construction is the basis of professional construction, and textbook construction is the support for curriculum construction. The quality of textbooks directly affects the quality of curriculum construction. Curriculum construction and professional construction are linked. In this article, the three major courses of drug operation and management are reconstructed, the content structure is reorganized, the ability points guided by work tasks are screened, and the development of loose leaf work manual teaching materials is explored in order to ensure that curriculum construction would serve professional construction as well as achieve the real goal of cultivating compound talents with technical skills and innovation in higher vocational colleges.

**Keywords:** Work manual teaching materials; Professional construction; Curriculum construction

---

**Publication date:** June 2021; **Online publication:** June 30, 2021

## 1. Analysis of research status and development trend at home and abroad

### 1.1. Domestic background

In China, vocational education has its own unique characteristics. Since its development, it has gradually formed an education with Chinese characteristics by acquiring learning experiences from foreign vocational education. The ultimate goal of vocational education is to jointly cultivate compound technical and skilled talents as well as contribute to the service via school-enterprise cooperation. In January 2019, the State Council issued the *Implementation Plan for the National Vocational Education Reform*, stating, "Vocational education and general education are two different types of education with equal importance." The recently concluded national conference on vocational education expressed a motion to improve the response toward technical and skilled talents, clear their career development channels, as well as enhance the recognition and attraction of vocational education.

At present, the state is vigorously promoting the pilot work of modern apprenticeship as well as the notice of five departments including the Department of Education of Yunnan Province in regard to the printing and distribution of the implementation plan of the modern apprenticeship pilot work at vocational colleges in Yunnan Province. The core of modern apprenticeship includes curriculum construction, which

is a work-process-oriented curriculum reform, where the development of loose leaf workbook teaching materials is particularly important.

## **1.2. Foreign background**

The two most popular vocational education models in the world are competency based vocational education and dual system vocational education; they are widely promoted all over the world and many new models have been gradually derived from them. The dual system by the Germans was the first widely used model around the world. Many countries have learned of the model. With its own unique characteristics, it manifested the unique national system of Germany with national characteristics and corresponding background.

## **2. Insufficient teaching materials of pharmacy and traditional Chinese medicine pharmacy in higher vocational colleges**

### **2.1. Defective contact with actual posts**

At present, the pharmacy course<sup>[1]</sup> and traditional Chinese medicine pharmacy course of the three majors mainly introduce the knowledge and theoretical system of various dosage forms, the specific content of prescription design, preparation process, quality inspection, and rational use. They remain at the same level as traditional teachers in terms of explanation and unilateral transmission of knowledge. There are many lectures focusing only on theoretical knowledge; the overall quality of higher vocational students is poor, and they have weak professional basic knowledge. If only one-sided knowledge is being instilled, students would eventually be tired of learning; thus, making it difficult for them to grasp the key contents. As a result, they would not be in line with the actual requirements of the posts.

### **2.2. Slow update progress of course content**

When selecting textbooks for most majors in higher vocational colleges, national planning textbooks are generally preferred. The teaching materials published by The People's Health Publishing House and those of China Traditional Chinese Medicine Publishing House are high-quality teaching materials resources. However, there are several disadvantages in using national planning textbooks: the contents of the textbook cannot be updated in time, there is a certain lag, and the docking with some emerging industries and new posts in the country is not timely; thus, the real goal of cultivating compound talents with technical skills and innovation in higher vocational colleges still remains unachieved.

## **3. Necessity of research**

The pharmacy course and traditional Chinese medicine pharmacy course train up pharmaceutical professional groups. The professional courses that are offered in pharmacy, traditional Chinese medicine, as well as drug operation and management belong to the professional core courses in pharmacy and traditional Chinese medicine. In other schools, these courses are integrated as drug preparation technology. The main contents of the course include basic concepts, rational use, quality requirements, common characteristics, specific production process procedures, production technology, quality inspection and evaluation, as well as drug preparation stability of commonly used clinical preparations. They are also related to many disciplines: clinical pharmacy, pharmacokinetics, biopharmaceutics, and others. It specifically includes biopharmaceutics, pharmacokinetics, drug dispensing technology, and pharmaceutical care. The teaching objectives are to enable students to gradually master basic theories, basic knowledge, and basic skills necessary for drug production, operation, dispensing, and drug management as well as to

develop their skills in preparing common preparations, product quality inspection and control, analyzing and solving common problems in the actual production process of preparations, as well as prescription dispensing and pharmaceutical care; in addition, it aims to lay a working foundation for students to master relevant preparation skills in the front line of drug production, operation, and service after graduation.

#### **4. Guiding ideology for the development of work manual teaching materials**

Actively integrate the ideas of national industries and promote school-enterprise cooperation to build a professional team for the development of teaching materials, where enterprise experts should occupy the main position. After building a team, begin to conduct industrial research, actively conduct research and analysis on the course contents and the job scopes of the posts, as well as integrate professional spirit and professional ethics <sup>[2]</sup>. In the process of developing work manual teaching materials, actively clarify that the teaching materials are the ultimate goal of serving the curriculum construction, and the contents of the teaching materials should conform to the ultimate goal of actual teaching.

#### **5. Specific links in the development of work manual teaching materials**

##### **5.1. Reconstruction of the course content of pharmacy and traditional Chinese medicine pharmacy**

The established school-enterprise textbook development team has been actively conducting research and analysis on the actual posts of pharmaceutical preparation workers (mainly involving chemical preparation workers, biological products preparation workers, and traditional Chinese medicine preparation workers) while deeply understanding the specific jobs of enterprises and actively implementing a curriculum system that corresponds to specific types of work. Finally, based on the course contents of pharmacy and traditional Chinese medicine pharmacy as well as the effort of school-enterprise teams in studying and reorganizing the course contents into liquid, solid, semi-solid, and others (gas agents), a work manual textbook development curriculum system has been formed.

##### **5.2. Specific contents of textbook development in the form of work manual**

###### **5.2.1. Knowledge system**

The teaching contents of the pharmacy course and traditional Chinese medicine pharmacy course in higher vocational colleges are nearly the same. The courses of pharmaceutics and traditional Chinese medicine pharmaceutics should be actively integrated, and four modules should be constructed; namely, solid reagent module, semi-solid reagent module, liquid reagent module, and gas reagent module. On this basis, theoretical knowledge should be reorganized, and the core concepts should be thought about and refined. In the construction of the curriculum content, the ideological and political goals should be used as the guidelines, teaching goals should be formed, and the four-dimensional goal system should be the target for achievement. The purpose of textbook reconstruction should be met.

###### **5.2.2. Capability system**

The core is based on the actual status of the school-enterprise teaching team; i.e., preparation workers, work operation processes, and actual position requirements. According to the teaching tasks of the four modules, which are liquid preparations, solid preparations, semi-solid preparations, and other preparations, it is necessary to select typical common tasks that correspond to the job scope of drug preparation workers, adapt to the purpose of modern higher vocational education and teaching, as well as effectively integrate courses, posts, and certificates. It is also necessary to actively form a curriculum system that takes into consideration of the comprehensive ability and learning system of posts. According to the actual ability

system, it should then be decomposed into thematic learning units to explore and create a model of teaching materials pertaining new drugs which can meet the needs of posts for talents. During the course construction, there is a need to actively connect with the core competence of the actual operation of the posts and the enterprise masters, summarize the professional competence, extract the professional competence points, integrate the course tasks with the professional competence points, as well as achieve consistency between the reform of textbooks and professional competence points.

### **5.2.3. Specific development and implementation process of work manual teaching materials**

The specific development and implementation process of work manual teaching materials generally involves two steps. First, the reorganization and reconstruction of the curriculum system. Only when the curriculum system is reconstructed well, then the development of workbook textbooks can be carried out. This is the key step of the development of workbook textbooks. The second step is to create a curriculum system based on actively researching the skills required by certain posts as well as the cooperation between schools and enterprises' experts in order to find out the typical work tasks that can correspond to the curriculum content. The ultimate purpose of developing textbooks is to serve the construction of the curriculum. Its core essence includes refining the competence points of core posts in the curriculum construction.

## **6. Prospects for the future development of work manual teaching materials**

The reform of teaching materials should be in line with the post standards and employment needs of enterprises<sup>[3,4]</sup>. The development of teaching materials is essential in curriculum construction; it is the core carrier of curriculum reform and construction. In the development process, schools and enterprises should cooperate, conduct relevant professional post investigation, unite schools and enterprises as well as teachers, actively construct courses, and unify the overall idea of developing teaching materials. In the process of exploration and reform, it is necessary to actively promote improvement and strive to achieve the realization of the contents and objectives of teaching. There has been continuous exploration in regard to the development of textbooks. It is important for the country's builders to make continuous efforts, promote in-depth school-enterprise cooperation, as well as the integration of education and industries so as to finally achieve the ultimate goal of textbooks' development.

## **7. Conclusion**

Under the general trend of national specialty reform, higher vocational colleges are dominated by specialty construction, where curriculum construction is the specific implementation and textbook construction is only the carrier of curriculum construction. Under the general trend of the national education reform, textbook construction reform is extremely important. Vocational Colleges in medical and pharmaceutical higher vocational colleges must actively consider the national professional teaching standards of the Ministry of Education as the minimum standard, actively combine the characteristics of their own medicine, combine work and learning, cooperate with medical education, integrate schools and enterprises, actively revise the talent training plan according to the national professional standards, build a new standard of professional teaching governance system according to the relevant requirements, form a new structure and thinking mode of medical specialties in higher vocational colleges, update and develop the courses, as well as explore the implementation of the talent training scheme<sup>[5]</sup>.

In the reform and development of teaching materials in the future, it is necessary to pay attention to the direction of the national vocational education reform policy, connect with new posts, new processes, new technologies, and new standards, actively set the objectives of the curriculum reform with the needs of

vocational posts, constantly innovate teaching methods and means in curriculum construction, meet the requirements and standards of the teaching objectives, as well as cultivate innovative, compound, and skilled talents in its purpose to speed up the construction of professional groups.

### **Funding**

The research project of modern apprenticeship in Yunnan Province – “Research on the Development and Application of Manual Teaching Materials for Pharmaceutical Specialty Groups in Higher Vocational Colleges Relying on the Pilot Project of Modern Apprenticeship – Taking Pharmaceutical Preparation Technology Teaching Material Development as an Example” and supported by the scientific research fund of Yunnan Provincial Department of Education (Project Number: 2020j1122) joint research results of relying on the pilot project of modern apprenticeship system under the expansion of Higher Vocational Education pharmacy loose leaf work manual textbook development and research.

### **Disclosure statement**

The authors declare that there is no conflict of interest.

### **References**

- [1] Wang Y, Du S, Wu Q, et al., 2020, Research on Teaching Reform of Traditional Chinese Medicine Pharmacy Based on PI Teaching Mode. *Health Vocational Education*, 38(6): 32-34.
- [2] Wei H, Zhu L, Zeng B, 2020, Research on Job-Based Loose Leaf Workbook for Drug Analysis in Higher Vocational Education. *Modern Vocational Education*, (24): 164-165.
- [3] Li X, 2020, Research on Manual Teaching Materials of Urban Rail Transit Station Equipment Driven by Real Tasks. *Think Tank Era*, (4): 232-233.
- [4] Li G, 2019, Research on Teaching Material Reform of Higher Vocational Courses Under the Background of Vocational Education Reform – Taking the Direction of Chemical Process Equipment as an Example. *Think Tank Era*, (23): 101, 106.
- [5] Zhuang M, 2019, Formulation Basis and Implementation Path of Professional Talent Training Program in Vocational Colleges – An Interview with Professor Xu Guoqing. *Vocational Education*, 18(5): 3-9.