

# The Teaching Design of Ethnic Medicine Course on Campus Zhuang Medicine Probation under the Achievement-oriented Education Concept

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**Abstract:** The concept of achievement-oriented education, which emphasizes student-centered and attaches importance to the development of students' personality, is a training mode that focuses on what students can do and what abilities they can acquire after being educated. The goal of its teaching design and implementation is to pay attention to students' final learning achievements through the education process. Taking "Drug Identification 3" in the course of Ethnic Medicine as an example, this paper briefly presents the basic ideas of the unit teaching design about the Ethnic Medicine under the achievement-oriented concept.

**Keywords:** Achievement-Oriented Education Concept, Ethnic Medicine, Instructional Design, Thematic Inquiry Learning

## 1. Introduction

In order to improve the teaching effect and let more students get comprehensive improvement in knowledge, skills, and literacy, the current drug probation mode of Ethnic Medicine is to learn while walking, and teachers will explain what drugs they see. There are no special topics and themes, so it is a cursory probation. Teachers "teach without practice" and students "learn without practice" do not meet the requirements of quality education. For a better teaching effect, the author applied the achievement-oriented education concept to the teaching design of the Ethnic Medicine course. It was implemented in the Pharmacy Major of 2021 Undergraduate Class (upgraded from junior college students) during the second semester of 2021-2022, and the teaching effect was great. Taking "Drug Identification 3" in the course of Ethnic Medicine as an example, this paper briefly presents the basic ideas of the unit teaching design about the Ethnic Medicine under the achievement-oriented concept.

## 2. Text

### 2.1. Course basic information

Course Name: Ethnic Medicine

Designers: Zhang Hongshen, Dou Xibin, Zhao Yufeng, Fu Rongbing and Zhou Jingkai.

Unit: Drug Identification 3 (Campus)

Teaching type: Internship Experiment Class

Teaching hours: 3 class hours

Major: Pharmacy

Class: 2021 Undergraduate Class(upgrade from junior college students)

## **2.2. Preparation before class**

### **2.2.1. Student characteristics analysis**

The target of this course is Pharmacy Major of 2021 Undergraduate Class(upgraded from junior college students). These students have some experience in pharmacy, some knowledge of common traditional Chinese medicines, clinical medication and Chinese medicine terms, which will promote the development of this course. However, the students have been promoted from junior college, whose personal confidence is not enough. They are afraid of difficulties, and they are worried that the content of drugs is too much, which makes their memory difficult.

Important point: Be able to analyze the efficacy of Zhuang medicines according to their shape, sexual taste and other characteristics.

Difficult point: The correlation between the shape, Herbal Properties and efficacy.

### **2.2.2. Teaching methods and measures**

Teaching methods: Under the concept of achievement-oriented, the course design and practice mode of the thematic inquiry learning was introduced into the Ethnic Medicine course on campus Zhuang medicine probation. The thematic inquiry learning of medicine is to purposefully screen and sort out the experimental medicine and the experimental contents, leaving only the clues related to the subject of the experimental medicine, and on this basis, design the research route, important point and practical contents of the thematic inquiry learning. The important point of “analyzing the efficacy of Zhuang medicine according to their shape, sexual taste and other characteristics” was explained through the thematic inquiry learning. On this basis, the difficult point of “ the correlation between the shape, herbal properties and efficacy” was solved through the enterprise product display related to drug shape and efficacy, the teacher’s summary of the correlation points between drug shape and efficacy, and the students’ report and discussion.

Learning methods: The thematic inquiry learning of medicine and the group cooperation inquiry learning.

Teaching measures: Combined with the herbal song “Hollow vegetation, good at wind control; The root of the leaves is hairy, which can cure blood diseases; Plants with thorns, removing blood stasis and swelling; The leaves contain pulp, which can discharge pus; Plants with square stems and white flowers have the same cold property; With round stem and red flowers, which is warm property; Fragrant smell, promoting qi circulation and relieving pain; Spicy smell, control and cure parasites, snakes and insects; With branch-to-leaf, which use for falling and beating” to analyze the morphological characteristics, efficacy and indications of physical Zhuang medicines on campus.

### **2.2.3. Teaching resources**

The campus Zhuang medicine resources, the enterprise product resources related to the drug form and efficacy, the network resources, etc.

### **2.2.4. Teaching objectives**

#### *(1) Knowledge objectives.*

① Students know the plant morphology, source, habitat distribution, collection, processing and prescription of common ornamental plants and medicines;

② Be able to tell the precautions for the use of various drugs;

③ It can analyze the efficacy of Zhuang medicines according to their different organ parts, morphology, herbal properties and other characteristics.

④ Be proficient in using wild plant identification software and small programs.

#### *(2) Ability objective*

Through the identification and study of common Zhuang medicines in Guangxi, the students’ ability to pick medicines in the field can be improved, and the students can master the ability to analyze the

efficacy of medicines through the herbal properties and shape.

### *(3) Emotional Objective*

Through the study of common Zhuang medicines in Guangxi, students' interest in ethnic medicines can be enhanced. And from the process of learning the basic knowledge of Zhuang medicines, let students realize the great contribution of minority medicine to people's health. This is of great significance to further strengthen national unity.

## **2.2.5. Preparation of teachers and students before class**

### *(1) The framework construction of inquiry learning course scheme*

The process of setting up the framework of the thematic inquiry learning probation: The lecturer inspects in advance on campus -- Determining the theme of the inquiry learning probation drugs -- Determining the campus route -- Determining the key drugs along the way -- Implementing the preparation work before the inquiry learning probation -- Issuing the task list (divided into the main line task and the autonomous task) -- Taking students on campus to study on the spot -- Showing the national medicine products of the enterprise -- Exchanging and discussing student reports -- Teachers summarize.

### *(2) The lecturer inspects in advance on campus and determines the theme of the inquiry learning probation drugs*

The inquiry learning probation is a walking class of learning while walking, but it is not a cursory class. Therefore, the lecturers ultimately chose to develop a thematic inquiry-based learning program for pharmaceutical research. This program is rooted in the principles of national pharmacology, particularly concerning the correlations among drug characteristics and efficacy as exemplified in the herbal song: "Hollow vegetation excels in dispelling the wind; hairy roots and leaves are effective in stopping bleeding; thorny plants are skilled in eliminating blood stasis and swelling; leaves with pulp are capable of expelling pus; plants with square stems and white flowers are possessing cold traditional Chinese medicine; those with round stems and red flowers are having a warm traditional Chinese medicine; fragrant aromas are promoting Qi circulation and relieving pain; pungent odors are effective against parasites, snakes, and insects; and plants with growing symmetric branches and leaves are employed for injuries resulting from falls and blows." It is integrating this knowledge with pre-inspection records of Zhuang medicinal plants cultivated and distributed on the campus. The subject of probation is "Unlocking the correlation password between the morphology and efficacy of drugs". The focus of probation is Zhuang drugs with hairs, thorns and symmetrical branches and leaves on campus. The experimental drugs and contents of the inquiry learning probation are screened and sorted out purposefully, leaving only drugs related to the subject of probation drugs.

### *(3) Preparation for the inquiry learning probation*

Knowledge preparation: Familiar reading and reciting of herbal songs; The distribution plan of the campus, etc.

Safety preparation: Essential medicines (cooling oil, toilet water, Huoxiang Zhengqi Liquid, etc.), paying attention to weather conditions and safety precautions in advance, etc.

Material preparation: Record book, camera, magnifying glass, shovel, specimen collection bag, mobile phone flower-knowing applet, etc.

## **3. Class Implementation Plan**

### **3.1. Preparation for probation**

By telling the story of Shennong's taste of herbs, Zhang Zhongjing's story of saving lives with herbs, and Li Shizhen's story of compiling Compendium of Materia Medica, we can create problem situations and stimulate learning motivation: Do we have methods and skills to face many medicines? Are factors such as the morphology and growth environment of medicines related to their efficacy and indications? Prompt the key points of study, and put forward the learning objectives of this probation.

### 3.2. The thematic on-the-spot inquiry learning stage

#### 3.2.1. The probation route and probation key drug design

After establishing the probation emphasis of Zhuang medicines with hair, thorns and symmetrical growth of branches and leaves, following the principle of from easy to difficult, from part to whole, we screened and sorted out three most representative Zhuang medicines with hairs (*Callicarpa purpurea*), thorns (*Rosa chinensis*) and symmetrical growth of branches and leaves (*Xiaobiangu*) on the campus of Youjiang Minzu Medical University. In the campus layout plan, the main line and probation focus are planned as “East Area and West Area” (Figure 1).

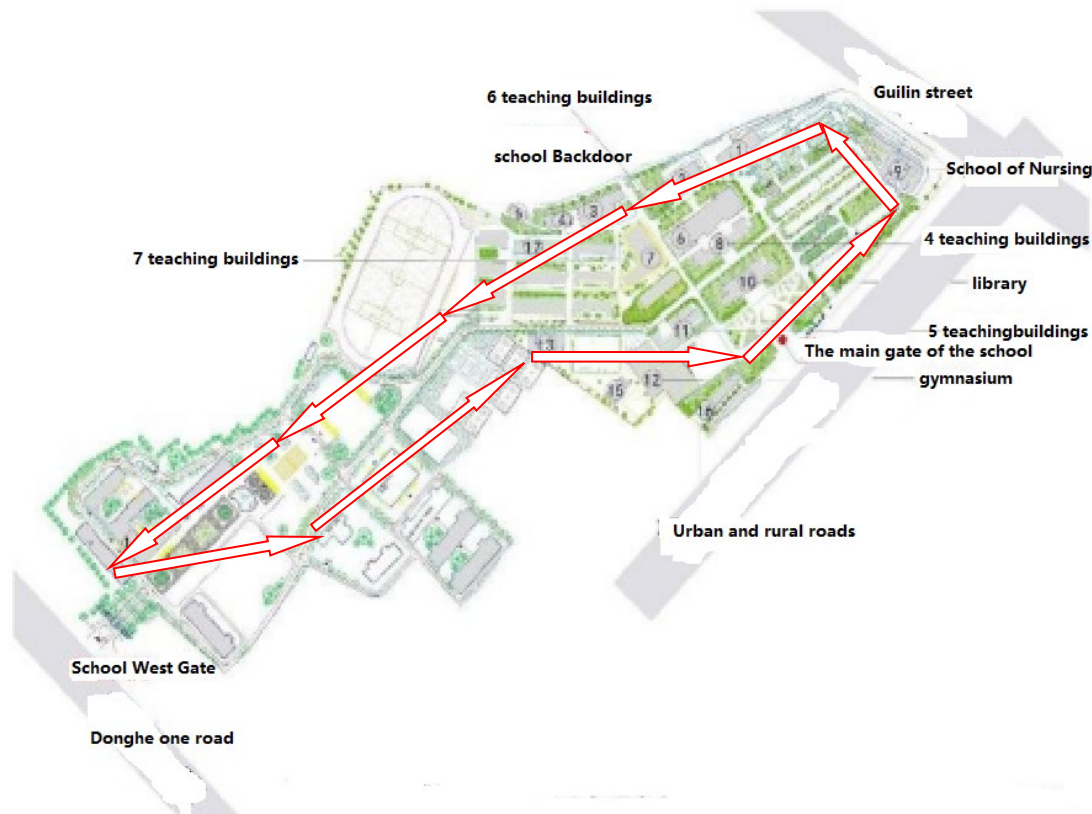


Figure 1. The sketch map of Youjiang Medical University for Nationalities

#### 3.2.2. Design of main line task list

According to the determined “East-West District” of inquiry learning probation route and key drugs, four links are set up for each inquiry learning probation experimental key drug, which are respectively asking questions, collecting evidence, speculating efficacy, perfecting conclusions, and finally formulating the main task list. Among them, the problems are determined by the lecturers according to the types of Zhuang drugs planted and distributed in the campus after pre-inspection. The problem design should follow the cognitive law of Zhuang drugs and have a certain thinking gradient, which can fully mobilize the students’ senses such as seeing, touching and listening, and become a chain that guides students to actively observe and think during the probation of inquiry learning. Students are the main body to collect evidence, speculate on efficacy and improve conclusions. For example, see Table 1 for the design of the main task list of the key drug *Callicarpa bodinieri* Levl for the the probation of inquiry learning.

Table 1: Task list of campus drug probation in Youjiang Medical University for Nationalities

Key medicine	Group number:		Group members:	
	Problem design	Evidence collection	Efficacy summary	Conclusion
Callicarpa bodinieri Lev	Observe the shape of Callicarpa bodinieri Lev, especially the hair of purple beads, and take photos to observe and describe the characteristics of hair; Combined with the knowledge background, speculate the efficacy of it.	The branchlets, petioles and inflorescences of Callicarpa bodinieri Lev are all coarse bran stellate hairs. The surface of the dried leaves is dark brown with pubescence, and the back is grayish brown, densely covered with stellate pilose.	Hemostasis efficacy	It has the effects of cooling blood, astringing and stopping bleeding, removing blood stasis, detoxifying and detumescence. It is used for bleeding, hemoptysis, hematemesis, hematochezia, metrorrhagia, traumatic bleeding, hot sores and scalds.
Pictures				

Notes: ① There should be a clear division of labor within the group, including team leader, deputy team leader, observer, recorder, etc. ② The evidence collection includes physical specimens, photos, videos, etc. ③ On-the-spot speculation of efficacy is mainly based on the theory of drug morphology. Later, the conclusion is improved and the report PPT is formed through network inquiry, evidence demonstration and group discussion.

### 3.2.3. Design of key drugs for probation

Callicarpa bodinieri Lev: ① Problem design: Observe the shape of Callicarpa bodinieri Lev, especially the hair of purple beads, and take photos to observe and describe the characteristics of its hair; Combined with the knowledge background, speculate the efficacy of it. ② Evidence collection: The branchlets, petioles and inflorescences of Callicarpa bodinieri Lev are all coarse bran stellate hairs. The surface of the dried leaves is dark brown with pubescence, and the back is grayish brown, densely covered with stellate pilose. ③ Analysis and discussion between teachers and students: Based on the collected evidence and relevant knowledge, it is speculated that Callicarpa bodinieri Lev have hemostatic effect.

Chinese rose: ① Observe the shape of Chinese rose, especially its thorns, and take photos to observe and describe the characteristics of its thorns; Combined with the knowledge background, speculate the efficacy of it. ② Evidence collection: The stems are mostly brownish green with hooked prickles. ③ Analysis and discussion between teachers and students: Based on the collected evidence and related knowledge, it is speculated that Chinese rose has the blood activating effect.

Gendarussa vulgaris Nees: ① Observe the morphology of the Gendarussa vulgaris Nees, especially the growth characteristics of its branches and leaves, and take photos to observe and describe the growth characteristics of its branches and leaves; Combined with the knowledge background, speculate the efficacy of it. ② Evidence collection: the stem is upright, the stem node is enlarged, and the branches are opposite. ③ Analysis and discussion between teachers and students: Based on the collected evidence and related knowledge, it is speculated that Gendarussa vulgaris Nees has the promoting reunion of fractured bones effect.

### 3.2.4. Independent task list design

The probation of thematic inquiry learning has clear main task and clear learning focus, which avoids the “wandering around” type of probation. However, there are also some drawbacks. Under the realistic background, according to the requirements of the curriculum standards, there are much more drugs to learn and master. If only one of the key drugs of a certain theme is explored for probation, it may not be able to “make the best use of everything”. Therefore, in the probation program of inquiry learning, we also introduced the concept of “leaving the probation of inquiry learning blank”. In addition to the main task list of observing Zhuang medicines with hair, thorns and opposite branches and leaves, we also increased the students’ independent task list, so that students can play their omnipresent observation power, discover and collect the characteristics of other drugs (at least 3 drugs for each group) except the

key drugs for probation, which will be shared and discussed at the summary meeting. See Table 2 for details.

*Table 2: Independent task list of campus drug probation in Youjiang Medical University for Nationalities*

Group number:		Group members:		
Observed drugs	Questions raised	Evidence-collecting	Speculative efficacy	Perfect conclusion
Pictures				

The design of students' independent task list can make up for the shortcomings of singleness and insufficient content in the probation of thematic inquiry learning, and can be designed as a branch task. Especially, it can give full play to the students' subjective initiative, stimulate the all-round mobilization of students' drug identification ability (observation, judgment, analysis, etc.), which is consistent with the of achievement-oriented education concept of emphasizing student centered and paying attention to students' personality development. Therefore, some free space is reserved in the probation process of inquiry learning for students to boldly observe and analyze. Leave the exploration and interpretation of problems to students and pay attention to their individuality and diversified development, which will make the probation teaching of inquiry learning richer and more exciting, and will collide with more sparks of inspiration.

### **3.3. The summary report design about probation of inquiry learning**

#### (1) Display of enterprise products related to drug form and efficacy

According to the results of inquiry learning, select relevant products of enterprises to display, so that students can understand the further processing and application of ethnic drugs.

#### (2) Teachers' summary on the correlation between drug form and efficacy

Teachers summarize according to the drugs observed in the process of inquiry learning and the relevant drug theories of ethnic medicine.

#### (3) Student report and discussion

When the probation of the group's on-the-spot inquiry learning is over, gather the students to report and summarize.

### **3.4. Reflection**

During the implementation of the probation experiment teaching in this unit, 61 students in the class were divided into three groups, and three teachers led the thematic drug inquiry learning. Through the design of the main task and single key drug problem, the students' senses such as seeing, touching, listening and thinking were mobilized, which became the chain for students to actively observe and think during the probation of inquiry learning. Most students can collect evidence of the correlation between drugs and morphology according to the problems of key drugs in the main task list, and can preliminarily speculate on the related efficacy and indications of drugs. And they improve the relevant conclusions through network resources, group discussions and other forms. In addition to the main task list of observing the Zhuang drugs with hair, thorns and opposite branches and leaves, by adding independent task lists, students can exert their omnipresent observation ability in the process of inquiry learning, discover and collect the characteristics of drugs other than the key drugs on probation (at least 3 drugs in each group), and share and communicate at the summary meeting. Finally, students were divided into 8 groups and handed in 8 copies of 41 Zhuang drugs. It can be seen from this that during the probation process of inquiry learning, some free space should be set aside for students to actively discover and observe, encourage students to boldly observe and find questions, fully hand over the exploration and interpretation of questions to students, pay attention to the personality and diversified development of each student, and the probation teaching of inquiry learning will be more colorful and exciting, which will produce more inspiration sparks. It can be seen that the probation teaching of thematic inquiry learning is consistent with the achievement-oriented education concept of highlighting students as the center and attaching importance to students' personality development<sup>[1]</sup>.

#### 4. Conclusions

The origins of Outcome-Based Education (OBE) are tied to the renowned Taylor principle, Bloom's mastery learning theory, and educational objective classification system [2-4]. It emphasizes that all educational activities should be aligned with and centered around the predefined learning goals to be achieved by every student at the conclusion of their learning process [3]. This implies the purpose of teaching design and execution is the achievement of learning outcomes by students at the end of the educational process [5]. Ethnomedicine, a pivotal discipline in our medical curriculum, features Medicinal Plant Recognition Course, where students observe aspects such as organ parts, morphology, taste properties of crude plants in the experimental course, key tools for deciphering drug efficacy. This research aimed to address the current state of ethnic medicine medicine recognition course teaching and meet demand for cultivating medical talents via OBE by refining course teaching objectives, integrating online and offline teaching resources, fostering a positive learning environment, and constructing theme-based drug exploration teaching models. The pedagogical practice confirms this model significantly enhances students' ability in medicinal plant recognition, providing insights into ethnic medicine teaching reform.

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