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Teaching Practice of Clinical Chinese Pharmacy with the Integration of Civic-Political Elements in the "Rain Classroom + BOPPPS" Mode

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Abstract: *This study takes the "Sedative Herbs" chapter of Clinical Chinese Pharmacology as an example to explore the teaching effectiveness of the "Rain Classroom + BOPPPS" teaching model integrated with Civic-Political elements. Through a three-stage design involving online pre-class preparation, multimodal interaction during class, and post-class consolidation and reflection, an organic integration of professional knowledge and value cultivation was achieved by permeating dimensions such as cultural confidence, professional ethics, and social responsibility. The results revealed that the final total score of the experimental class was significantly higher than that of the control class ($P<0.05$), with a simultaneous significant improvement in classroom participation and cultural confidence in Chinese medicine. The practice has proven that this model effectively enhances students' learning outcomes and the penetration of Civic-Political education, providing a novel approach for the teaching reform of Clinical Chinese Pharmacy.*

Keywords: *Clinical Chinese Pharmacy; Rain Classroom; BOPPPS Model; Civic and Political Element*

1. Introduction

As a foundational course in the Chinese Materia Medica program, Clinical Chinese pharmacy bears the dual responsibility of cultivating students' ability to prescribe herbs based on syndrome differentiation and preserving the heritage of traditional Chinese medicine culture. However, the course content is vast and complex, covering the nature, properties, functions, and main indications of 484 commonly used Chinese medicines. Traditional, one-way, lecture-based teaching methods often lead to cognitive overload and learning fatigue among students. Additionally, contemporary college students are characterized by active thinking but a lack of self-control [1]. Relying heavily on electronic devices, they need more engaging teaching methods to boost their learning motivation.

The introduction of the "Rain Classroom + BOPPPS" teaching model offers new insights and approaches for teaching Clinical Chinese pharmacy. The Rain Classroom, a smart teaching tool, supports features such as real-time comments, random roll calls, and in-class quizzes. It enables online monitoring of learning progress and provides real-time feedback, forming the basis for precise teaching [2]. The BOPPPS teaching model constructs a student-centered framework through six stages: "Introduction, Objectives, Pre-test, Participatory Learning, Post-test, and Summary," emphasizing the enhancement of students' autonomous learning abilities [3]. Combining the two models can significantly increase students' learning interest and participation. Furthermore, traditional Chinese medicine, as a treasure of the Chinese nation, carries rich philosophical ideas and cultural connotations. Subtly incorporating ideological and political elements into the teaching process can strengthen students' cultural confidence, achieving the organic unity of knowledge transmission and value guidance.

Therefore, this study uses "sedative herbs" from Clinical Chinese pharmacy as an example to explore the application of the "Rain Classroom + BOPPPS" model, which integrates ideological and

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political elements, in teaching Clinical Chinese pharmacy. This study provides a reference for improving the effectiveness of Clinical Chinese Herbal Medicine courses and advancing teaching reforms.

2. Teaching Analysis

2.1 Analysis of the Clinical Chinese pharmacy Course

The course covers 484 Chinese medicines and features a vast content system with overlapping and repetitive knowledge points. Similarities in the effects of certain herbal medicines can lead to confusion, and the abstract nature of traditional Chinese medical terminology complicates understanding further. Traditional teaching methods lack visual demonstrations and interactive feedback. This results in students passively receiving knowledge and lacking interest and confidence in learning. Consequently, they generally achieve lower academic performance.

2.2 Analysis of the Target Audience

The target audience for this course is first-year students in a four-year Chinese medicine program. Prior to this course, students have studied subjects such as “Foundations of Traditional Chinese Medicine,” “Human Anatomy and Physiology,” and “Fundamentals of Pharmaceutical Chemistry.” They have also acquired a certain level of logical thinking in traditional Chinese medicine and basic medical knowledge, such as anatomy. Additionally, contemporary students are active thinkers with strong self-learning abilities, and they are skilled at using various media software to assist in their studies. Online teaching platforms are highly attractive to them. However, they are accustomed to passive learning, lack initiative, have short attention spans in class, and require diverse, interactive designs to maintain their motivation to learn [3].

2.3 Analysis of Ideological and Political Education in Courses

In the construction of ideological and political education in the course of Clinical Chinese pharmacy, it is necessary to closely integrate the characteristics of the Chinese medicine discipline and help students establish a solid foundation of cultural confidence by deeply exploring the rich connotations of Chinese medicine culture. In addition, it is necessary to closely follow the national “Healthy China” strategy and Chinese medicine revitalization and development policies, deeply integrate theoretical teaching with the needs of the times, guide students to recognize the unique value of Chinese medicine in the modern health field, and effectively strengthen their sense of mission and responsibility [4].

3. Teaching construction of “rain classroom + BOPPPS” mode integrating elements of ideology and politics

3.1 Pre-course stage

3.1.1 Bridge-in

Teachers utilize the Rain Classroom platform to share educational resources that are both informative and engaging, such as a video showcasing Wang Yirong’s discovery of oracle bone script on dragon bone used in sedative medications. This approach aims to spark students’ curiosity about sedative medications, deepen their appreciation for the unique charm of traditional Chinese medicine that bridges ancient and modern times, and lay a solid cultural and emotional foundation for subsequent specialized knowledge learning.

3.1.2 Objective

Teachers clarify the three-dimensional teaching objectives of knowledge, skills, and emotions for this chapter based on the curriculum guidelines, display the teaching objectives in the courseware, and push the courseware to students via the Rain Classroom platform. Students can then formulate their pre-study plans based on the teaching objectives and identify the key knowledge points to focus on.

3.1.3 Pre-assessment

Teachers design relevant pre-study test questions and distribute them to students via the Rain

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Classroom platform to assess their pre-study outcomes. Additionally, teachers can view students' response rates and accuracy rates in the Rain Classroom backend to promptly understand students' pre-study progress, knowledge reserves, and learning initiative. Based on students' responses, teachers can adjust the focus of in-class explanations.

3.2 In-class stage

The in-class stage is the core component of the "Rain Classroom + BOPPPS" teaching model, corresponding to the "Participatory Learning" phase within the BOPPPS framework. It focuses on the seamless integration of student participatory learning with ideological and political education elements [5,6], and is designed primarily around the following four aspects:

3.2.1 Course Introduction and Goal Clarification

1) Problem-driven introduction: Using the insomnia rate data from the "2024 China Sleep Research Report" as a starting point, pose the question, "How does traditional Chinese medicine treat insomnia?" Guide students to think about the application value of traditional Chinese medicine in the field of sleep health based on their actual lives, naturally introducing the topic of sedative drugs and stimulating their desire to explore. 2) Reaffirming the three-dimensional objectives: Reaffirm the knowledge, ability, and emotional objectives of this chapter in class to ensure that students have a clear understanding of the learning focus.

3.2.2 Multimodal Knowledge Explanation and Cognitive Deepening

1) Intuitive perception: Display the appearance of sedative herbs through actual herbs or high-definition images to enhance sensory cognition. 2) Knowledge linkage: Combine the content of courses such as "Fundamentals of Traditional Chinese Medicine" and use the logical chain of "deriving efficacy from properties and linking efficacy to main indications" to deepen understanding of knowledge and reduce cognitive load. 3) Fun memory method: Design mnemonics for complex efficacies to improve memory efficiency and learning fun.

3.2.3 Interactive practice and instant feedback

1) Teacher-student interaction: Use the "random roll call" feature in Rain Classroom to select students to answer questions, encouraging them to think actively. Enable real-time interaction via "live chat," encouraging students to ask questions or share insights at any time. Teachers can dynamically adjust the pace of their explanations based on frequently asked questions in the chat, achieving precise clarification. Use the "in-class exercises" feature to distribute relevant practice questions, with the system tracking answer accuracy in real time. 2) Gamified Reinforcement: Design a themed riddle quiz on calming herbs to make learning fun and enliven the classroom atmosphere.

3.2.4 Civic immersion and value leadership

(1) Cultivating Cultural Confidence: In teaching about sedative herbs, teachers introduce classic medical cases involving the use of sedative herbs and real-life examples of their application during the pandemic to guide students in appreciating the historical contributions and modern value of traditional Chinese medicine, thereby enhancing their sense of cultural identity and national pride[7].

(2) Infusion of Professional Ethics: Taking cinnabar as an example, its main component is mercury sulfide, which, when calcined, produces toxic elemental mercury. In teaching, instructors use animations to demonstrate the chemical reaction equations of cinnabar decomposition when heated and videos to show medical accidents caused by improper processing leading to mercury poisoning. They emphasize the professional philosophy of "medication is like warfare" to guide students in understanding the bioethical responsibilities behind "precise medication."

(3) Stimulating a sense of social responsibility: In teaching about sedatives, teachers can introduce data from the "China Sleep Research Report 2024"[8], organize students to discuss topics related to insomnia, and guide them to pay attention to their own and others' sleep health. Teachers should encourage students to actively participate in health science popularization activities after learning about sedatives, enabling them to transform professional knowledge into the ability to serve society and enhance their sense of social responsibility.

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3.3 Post-course stage

3.3.1 Post-assessment

Design post-class assignments: basic questions are used to test knowledge retention; case analysis questions assess the ability to use medicine dialectically. These are distributed to students via the Rain Classroom app, allowing students to consolidate their knowledge in a timely manner. Teachers can view students' answers at any time through the backend to assess or verify whether students have achieved the teaching objectives. Additionally, teaching designs can be improved based on test results to enhance teaching quality.

3.3.2 Summary

1) Student Self-Summary: Students are required to organize the core content of this chapter using mind maps or tables, constructing a knowledge framework of "drug classification → representative drugs → properties and meridian tropism → functions → main indications → contraindications for combination," to reinforce knowledge association memory and cultivate independent summarization skills. 2) Teacher Teaching Reflection: Teachers should based on pre-class preparation data, in-class interaction performance, and post-class assessment results, summarize the strengths and weaknesses of this class and promptly improve teaching methods for future lessons.

4. Practical results

To evaluate the practical effectiveness of the teaching model integrating "Rain Classroom + BOPPPS" with ideological and political elements, this teaching team selected the 2023-level undergraduate class in Chinese Materia Medica at our institution as the experimental group. The "Clinical Chinese pharmacy" course for this class in the spring semester of 2024 was conducted using this teaching model. The 2022 class of the undergraduate program in Chinese Materia Medica was designated as the control group, with the "Clinical Chinese pharmacy" course for the 2023 spring semester taught using traditional teaching methods. There were no significant differences between the two groups in terms of age, gender, or admission scores. The textbooks and instructors were the same for both groups, and the exams for different semesters were uniformly designed by this teaching team, with comparable question volume and difficulty, ensuring comparability.

4.1 The effect of the total final grades

The total final grades of Clinical Chinese pharmacy of the experimental class and the control class were analysed using SPSS24.0 statistical software, the data were expressed using ($\overline{x}$±s), and the means of the two samples were analysed at the level of difference using the paired t-test, with $P<0.05$ indicating a significant difference. As shown in Table 1, compared with the control class, the total final grade of the experimental class was significantly improved, which was statistically significant, indicating that students' understanding and mastery of knowledge were more solid in the teaching practice of Clinical Chinese pharmacy in the teaching mode of "Rain Classroom + BOPPPS" incorporating the elements of Civics and Politics.

Table 1 Comparison of scores between control class and experimental class ($\overline{x}$± s).

Group	Number of students	Total Achievement at the End of Term
Experimental class	60	63.37±15.61
Control class	64	77.29±14.73
P value		P<0.05

4.2 Evaluation of Teaching Effect

After the end of the course, in order to understand the students' evaluation of the teaching practice of "Rain Classroom + BOPPPS" incorporating the elements of Civics and Politics in the teaching of Clinical Chinese Pharmacy, the teachers conducted a satisfaction questionnaire survey on 60 students in the undergraduate class of Chinese Pharmacy in the class of 2023, and 60 questionnaires were distributed, 60 were recovered, and the recovery rate was 100%. The results of the questionnaire survey (Table 2) show that students have a high degree of satisfaction with the teaching mode in terms of improving learning interest, learning initiative and confidence in Chinese medicine culture.

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Table 2 Satisfaction Survey on the Teaching Mode of "Rain Classroom + BOPPPS" Integrating the Elements of Civics and Politics.

Survey item	Satisfaction	General	Dissatisfied
1. Enhancement of learning interest	56 (93.3)	4 (6.7)	0
2. Improvement of learning initiative and motivation	51 (85)	9 (15)	0
3. Enhance understanding and mastery of theoretical knowledge	52 (86.7)	8 (13.3)	0
4. Establishing cultural self-confidence in Chinese medicine	55 (91.7)	5 (8.3)	0
5. Deepening the understanding of "Great Medical Excellence".	56 (93.3)	4 (6.7)	0
6. Increased participation in the classroom	52 (86.7)	8 (13.3)	0
7. Overall evaluation of the teaching mode of "BOPPPS+Rainy Classroom" incorporating the elements of ideology and politics	55 (91.7)	5 (8.3)	0

Note: The count data in the table are [number (%)].

5. Conclusion

This study used Clinical Chinese pharmacy as a vehicle to construct a "Rain Classroom + BOPPPS" teaching model that incorporates ideological and political elements. Through the six-step design of the BOPPPS framework and the intelligent tools supported by Rain Classroom, the structural and interactive nature of the teaching process was optimized. The final scores of the experimental class were significantly higher than those of the control class by 14.92 points ($P < 0.05$), and classroom participation, independent learning ability, and confidence in traditional Chinese medicine culture were simultaneously enhanced. Its innovation lies in leveraging the discipline's unique characteristics to organically integrate the systematic nature of BOPPPS, the technological capabilities of Rain Classroom, and the guiding principles of course-based ideological and political education, forming a replicable teaching paradigm: on one hand, it utilizes multimodal resources (physical demonstrations, gamified interactions) and real-time feedback mechanisms (live chat questions, in-class quizzes) to facilitate knowledge internalization; on the other hand, it uses TCM cultural cases as concrete carriers for value shaping, breaking through the barriers between professional education and ideological and political education, and achieving synchronous resonance between professional competence and value concepts.

Against the backdrop of the comprehensive advancement of the "Healthy China" strategy and the revitalization of traditional Chinese medicine, this study provides empirical support for reforms in clinical pharmacology education and offers new insights into the practical pathways for "adhering to tradition while innovating" in the cultivation of traditional Chinese medicine talent in the new era. In the future, our team will further optimize teaching designs, expand the ideological and political case repository, and strive to cultivate traditional Chinese medicine talent with both solid professional foundations and a sense of national pride, thereby promoting the inheritance, innovation, and high-quality development of the traditional Chinese medicine sector.

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