

New Perspective of Teaching and Research Reform: Exploration and Practice of Teaching Strategies in Marine Pharmacology of Chinese Medicine

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Abstract: With the increasing improvement of the teaching system in colleges and universities, offering elective courses has become a major trend in higher education today. However, in Guangxi universities, the unique elective course of “Marine Pharmacology of Chinese Medicine” faces dual challenges: insufficient attention from students and varying teaching quality. In response to these challenges, our course team actively explores new teaching models, varies teaching methods, and enhances the implementation of interactive teaching. We delve into the teaching reform of elective courses in traditional Chinese medicine (TCM) and pharmacology, and propose a series of specific countermeasures in order to provide useful references and inspirations for improving the teaching quality of elective courses in traditional Chinese medicine and pharmacology.

Keywords: The Elective Course, Marine Pharmacology of Chinese Medicine, Teaching Reform, Strategy Exploration

1. Introduction

Marine Traditional Chinese Medicine (TCM) represents a distinct domain where the time-honored principles of TCM converge with the oceanic pharmacopeia. This field is distinguished by its integrative methodology, which employs macroscopic insights and meticulous analytical strategies to elucidate the therapeutic potential of marine-derived botanicals. Occupying a pivot in the educational framework of traditional medical institutions, it underscores the discipline’s relevance as a foundational applied science [1]. Situated within the landlocked province of Guangxi, many students lack direct exposure to the sea and its rich biodiversity. Consequently, the novelty of “Marine Traditional Chinese Medicine” acts as a magnet for their inquisitiveness. This interest is not solely piqued by the novelty of the oceanic unknown; it is also stoked by the intrinsic mystique of the marine environment. The ocean’s allure serves as a beacon, drawing students into a world of discovery and academic exploration. Building upon their existing knowledge of TCM, students are poised to plunge into the depths of “Marine Traditional Chinese Medicine.” They expand their understanding of TCM’s core tenets, plumbing the pharmacological depths, therapeutic efficacy, and clinical applications of marine botanicals. Engaging in comparative studies between their familiar terrestrial herbs and their marine counterparts, students gain a richer appreciation for the breadth and depth of TCM’s pharmacological wisdom. This process lays the groundwork for a solid academic foundation in clinical TCM, TCM pharmacology, TCM chemistry, and the art of medicinal material processing. [2-3].

The “Marine Traditional Chinese Medicine” course offered by our university carries the important mission of cultivating the literacy and innovative spirit of students majoring in TCM. However, due to the contradiction between the compact schedule and the extensive teaching content, the traditional teaching model faces significant challenges in completing teaching tasks. Facing this challenge, our course group has deeply analyzed the problems existing in teaching and explored and reformed from multiple dimensions. In terms of teaching content, we focus on careful selection and integration to ensure that students can master core knowledge points. In terms of teaching methods, we actively introduce

modern teaching methods, such as multimedia teaching and the case analysis, to stimulate students' interest in learning and increase their participation. In terms of assessment, we emphasize the combination of process-oriented evaluation and outcome-oriented evaluation, aiming at comprehensively evaluate students' learning effectiveness. Through the implementation of these reform measures, we expect to further improve the teaching quality of the "Marine Traditional Chinese Medicine" course and cultivate more talents with professional literacy and innovative capabilities.

2. Text

2.1. Teaching of existing problems and analysis

2.1.1. Students pay insufficient attention to the new courses

As a new elective course in our school, Marine Chinese Pharmacy is faced with many challenges. Most students rely too much on teachers' teaching in the learning process, and lack the motivation for active learning and in-depth inquiry [4]. In class, some students are easy to be distracted and distracted, difficult to concentrate, and the understanding and grasp of the course content is not deep enough. In tests, students often respond by rote and lack real understanding and application. This kind of ideological inattention leads to the teaching effect is not ideal. Students usually only regard this course as a temporary response, and it is difficult to truly understand and understand the charm and value of Marine Chinese medicinal herbs. Most students may think that this is just an elective course and do not have to be too serious, so they lack initiative and enthusiasm in the learning process.

2.1.2. There are more course content and less class hours

When preparing the teaching content of "Marine Chinese Medicine", teachers often focus on teaching the core knowledge points due to the limited class hours, aiming at enable students to master the basic theoretical framework and thinking mode of this course. However, this teaching method based on active output and passive input is easy to ignore and stimulate students' internal learning motivation, which leads to the lack of exercise opportunities and unsatisfactory learning effect. "Marine Chinese Pharmacy" has many contents, students are easy to feel confused and afraid of difficulties in the face of massive knowledge, and even muddle along emotions, it is difficult to raise the interest in learning. This makes it difficult for teachers to achieve the intended teaching objectives. Traditional teaching method, such as system teaching method, to the source of Marine Chinese medicine, taste, efficacy and usage dosage content, and urge students to read the teaching material, it can transfer a lot of knowledge in a short time, but boring words and complex difficult to remember knowledge often make students daunt. In addition, there are differences between students' learning and thinking ability and cognitive understanding ability. Some students have high consciousness and initiative, but most students are still used to relying on teachers' direct teaching and are in a state of passive acceptance of knowledge.

2.1.3. It is difficult to realize physical teaching

As an emerging elective course of traditional Chinese medicine, compared with traditional Chinese medicine courses, students can usually have access to and understand common traditional Chinese medicine materials through hospitals, pharmacies, botanical research institutes, or forest parks. However, for Marine Chinese Medicine, most Marine Chinese medicines come from the seaside or deep sea, so it is difficult for students to directly access these medicinal materials, and lack intuitive understanding and understanding of them. In addition, the text description in the textbook is often difficult to fully show the characteristics of Marine Chinese medicine and lack of intuitive picture display, which makes it easy for students to have a "sense of distance" in the learning process, and it is difficult to truly understand and feel the charm of Marine Chinese medicine. This lack of intuitive perception leads to students often just listen carefully on the surface, but in fact, they do not really absorb and understand the knowledge points, and soon forget after class. This way of learning not only makes students have a deep understanding of Marine Chinese medicine, but also cannot achieve the teaching objectives of the curriculum.

2.2. Corresponding measures for teaching

2.2.1. Strengthen interactive teaching

The traditional teaching mode often presents a "cramming" teaching form, in which teachers impart knowledge unilaterally while students accept it passively. This one-way "output" mode often ignores whether students really "input" knowledge. In contrast, in interactive teaching, the formation of "two-

way interaction” requires teachers and students to play the active mechanism together, jointly create an active classroom atmosphere, and establish a harmonious and equal teacher-student relationship, which is the basic premise and condition for carrying out interactive teaching. The teaching process is a holographic process, which needs to encourage every student to actively participate in it. For example, when talking about the key knowledge points of certain marine traditional Chinese medicine, the teachers can use the way of “throwing hydrangea balls” to touch the students to think and answer the questions. Using modern teaching tools, such as the “random roll call” model in the rain classes, students can be encouraged to think positively and answer bravely. At the same time, teachers should leave students a “blank space” in teaching, that is, when explaining the efficacy of key Marine Chinese medicine, they should not rush to directly give the corresponding indications, but leave students a certain amount of time to think and discuss. Teachers can guide students to deduce the corresponding indications under the guidance of traditional Chinese medicine theory, so as to achieve the effect of drawing inferences from one example. In addition, before the next class, the teacher can use the courseware to review the pictures of the Marine Chinese medicine learned in the last class, and encourage the students to answer the questions actively and boldly, and solve the problems from multiple perspectives such as medicinal properties, efficacy and indications. Such interactive teaching can not only trigger students’ psychological excitement from multiple angles, but also make the teaching interaction expand to a deeper and wider direction, so as to effectively cultivate and exercise students’ ability.

2.2.2. “Speaking” to promote “learning”

In the traditional teaching mode, the platform often becomes the stage for teachers to perform alone, while the students are in a passive position of acceptance. How to effectively drive students to actively participate in the classroom has become a major challenge for the current teachers. In the teaching of Marine Chinese Medicine, our research group has tried a new teaching method. Before class, the teacher divides the whole class into several study groups, and each group consists of 4-6 students. The teacher selects the key Marine Chinese medicine in each chapter and assigned these contents to each group. For example, with the theme of “Heat-clearing Marine Chinese medicine”, team members need to work together to consult, discuss data and make PPT. Each team member needs to go on the stage and teach the theme of the group in the form of “drama”. Each student is responsible for teaching 2-3 Marine traditional Chinese medicines. Students in the other groups asked questions, while students in this group needed to keep good records of the questions and answers. In order to ensure the fairness of the evaluation, the teacher designs a rating table, which covers many aspects of posture, speech, courseware quality, the interaction degree and the time control. The teacher and other group leaders will work together as judges to score the performance of each group. Finally, by calculating the average score of the group, the final score of the group is obtained, and the score of this score is included in the final assessment results. After the students finish the teaching, the teacher will explain the remaining key Marine Chinese medicine, and comment on the performance of each group to point out their advantages and disadvantages. This change of teaching method has greatly improved the participation of students, and truly realized that students become the main body of the classroom. By consulting materials, making PPT and teaching on stage, students not only exercised their ability, but also experienced the satisfaction and sense of achievement of learning. At the same time, the form of group cooperation also strengthens the sense of cooperation between students, which is conducive to cultivating students’ social adaptability. This way of learning not only makes students more interested in learning, but also is conducive to cultivating students’ autonomy and independence, so as to cultivate the ability to solve problems. At the same time, it also provides more opportunities for students to exercise and promotes their all-round development.

2.2.3. Set up a research group in your spare time

The learning content of college students is highly professional and career-oriented. At the same time, with the substantial increase of the teaching content, students need to arrange more self-study time independently. Setting up elective courses such as Marine Chinese Pharmacy is not only a beneficial expansion of students’ professional knowledge, but also an important measure to promote students’ comprehensive development [5-6]. Due to the limitation of classroom teaching time, it is necessary to extend the classroom teaching and put part of the teaching content offline. Before the class starts, the teachers need to fully understand the geographical distribution of the students in the teaching class, especially the students in the coastal cities such as Beihai and Fangchenggang. According to the regional characteristics of students, they are divided into several study groups. Students are encouraged to use the holidays and weekends to go to the local area, collect knowledge about Marine Chinese medicine, or understand the local habits of medication. Bring the field experience and knowledge to the classroom to share, and make the teaching content more vivid and specific. Guangxi Zhuang Autonomous Region is rich in Marine resources, beibu Gulf is a famous fishing ground in China and a treasure house of world

Marine life species resources, with high scientific research and ecological value [7]. For medical institutions, especially pharmacy or Chinese pharmacy students, these resources are a valuable asset to broaden their knowledge horizons and enhance their practical ability. Through the Marine pharmacy course study, the students can not only broaden the professional, for the future employment in different jobs provides the necessary professional knowledge, such as traditional Chinese medicine seafood processing industry, Chinese medicine seafood health care industry, Marine biopharmaceutical and value extraction, etc. To broaden their employment channels, alleviate the employment pressure of the school employment. At the same time, this course can also stimulate students' interest in the scientific research of Marine Chinese medicine, guide them to cultivate and discover their scientific interest in the scientific research of Marine Chinese medicine, and provide learning motivation and related basic theoretical knowledge for further students in the future.

2.2.4. Flipped classroom teaching, multimedia integration of traditional teaching

The traditional teaching mode is often based on the text description, which is often rendered monotonous, leading to students' passive acceptance of knowledge, lack of enthusiasm, and unable to give full play to their subjective initiative. With the rapid development of information technology today, it is necessary to explore how to make boring words vivid, turn the traditional learning process, and use videos to implement teaching, so that students can truly feel the charm of Marine Chinese medicine, stimulate their interest in learning, and answer their questions. Teachers can collect rich information through CNKI, Baidu discipline and other related platforms, and combine pictures, videos of Marine Chinese medicine, clinical application of Marine Chinese medicine. In particular, we should pay attention to the examples in life as the introduction to arouse students' interest and curiosity. In the course of teaching, teachers can collect some short videos as auxiliary materials for key marine Chinese medicine. The length of these videos should be controlled in about 1-2 minutes, which can not only be played within the time range of students' attention, but also conform to the characteristics of students' physical and mental development. Videos released through the Internet have various functions, such as pause and playback. Students can conduct self-control according to their own rhythm, which is conducive to their independent learning. This teaching method can not only make the classroom more efficient, but also help students to deeply remember the efficacy and indications of Marine traditional Chinese medicine, so as to achieve the teaching objectives. In addition, in order to better meet the learning needs of teachers and students, a Marine video library of Chinese medicine is established for teachers and students to consult and use at any time. This teaching mode not only helps to cultivate students' learning ability and thinking innovation ability, but also can improve their memory ability. Therefore, compared with the traditional teaching mode, this video-assisted teaching mode is more helpful to achieve the teaching goals and promote the comprehensive development of students.

2.2.5. Combine life examples to improve the degree of course promotion

Before in-depth explanation of Marine Chinese medicine, teachers need to use authoritative platforms such as Baidu and CNKI to collect information about local characteristics or local famous medicinal materials, and closely combine them with examples in life [8]. For example, when teaching to heat medicine "sea olive female", in detail this is one of the most widely distribution area of mangrove plants, it is not only in the purification of seawater, wind and plays an indispensable role in maintaining biodiversity, also known as the "coast guard", and in the North Sea, people affectionately call it "money", meaning the tree can bring people economic harvest and valuable medicinal resources. Such a vivid explanation makes the students' understanding of Marine Chinese medicine more specific and vivid. For example, when referring to the traditional Chinese medicine "sea octopus", it is made from the dry inner shell of squid, which has the effect of astringent, but students usually can distinguish the three Marine creatures: squid, squid and octopus, and often fall into the dilemma of rote learning. To this end, using vivid description to help students understand: squid slightly longer, such as the head of a javelin, hence the name "squid"; squid body ellipse, both sides, the body has a hard shell, ink escape in danger; and the octopus for its eight strong wrist and ink spray characteristics. With this description, students will not only be able to easily distinguish between the three organisms, but also to have a deeper understanding of the source and efficacy of the sea octopus. This way of explaining connected with practical life not only makes students have a strong interest in what they have learned, but also makes them gain a sense of achievement and pride in the learning process, so as to further stimulate their learning motivation. Through this teaching method, students have a deep understanding and love of Marine Chinese medicine, which lays a solid foundation for their future study and practice.

2.2.6. Mutual evaluation between teachers and students, and two-way evaluation

Teaching evaluation mechanism is an indispensable part of the teaching of Marine Chinese medicine

elective course. However, the traditional “fractional type” evaluation is often difficult to fully reflect the quality of the curriculum. Therefore, in order to construct a more applicable teaching evaluation system for Marine TCM elective courses, a two-way evaluation mechanism of mutual evaluation between teachers and students is adopted. First of all, the evaluation of teachers’ teaching should be participated by students, and considered from multiple dimensions such as classroom quality, teaching content and popularity. This includes the immediate evaluation of each class to observe the compatibility of the enthusiasm of homework or discussion to measure the impact of the teaching content on students’ subsequent learning; and encouraging students to share insights and make suggestions after the course to give comprehensive feedback on the teaching effect. This evaluation method is helpful for teachers to objectively and comprehensively understand the advantages and disadvantages of their own teaching, and then optimize the teaching strategies and improve the teaching quality. Secondly, the assessment of students’ learning should be integrated with formative evaluation and final evaluation. Formative evaluation focuses on students’ performance in the learning process, including attendance, learning the achievement display, classroom homework and mutual evaluation, etc. Accounting for 60% of the total score. This evaluation method encourages students to participate actively, pay attention to the mastery of the process and methods, and helps to stimulate students’ interest in learning and independent ability. The final evaluation tests the students’ learning results through mid-term tests and final tests, accounting for 40% of the total scores. This evaluation method can objectively and comprehensively reflect the students’ real learning situation, and ensure the fairness and justice of the evaluation. To sum up, through the two-way evaluation mechanism of mutual evaluation between teachers and students, teachers can evaluate the teaching quality of Marine Chinese medicine elective courses, and at the same time stimulate students’ interest in learning and independent ability, and improve the teaching effect. This evaluation mechanism is helpful to build a more scientific and reasonable teaching system of Marine Chinese pharmacy elective courses, and lay a solid foundation for the comprehensive development of students.

3. Conclusion

The offshore waters of Beibu Gulf in Guangxi breed nearly a thousand kinds of Marine life, most of which contain extremely high economic value. This region has three coastal prefecture-level cities, including Beihai, Qinzhou and Fangchenggang, facing southeast Asia and backed by the southwest, as the gateway of the southwest sea corridor. Its geographical location is unique and has extremely important strategic significance. Through the course of Marine Chinese Pharmacy, students will gradually develop the ability of independent thinking, combining theory with practice and problem-solving, laying a solid foundation for serving TCM in the future. In addition, Guangxi also enjoys the policy advantages of coastal opening-up and regional national autonomy, and provides a relaxed investment environment, which has created a very favorable foundation for the development of Marine economy in Guangxi. In this context, Guangxi not only provides rich resources for the development of Marine biological traditional Chinese medicine, but also lays a solid material foundation for the development of all human health care work and other industries. With the continuous development of Marine economy, Guangxi will make more outstanding achievements in the fields of development of Chinese medicine and health care.

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