

Construction Ideas of Musculoskeletal Rehabilitation First-class Undergraduate Course Based on Online and Offline Blended Teaching

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Abstract In order to combine the advantages of online teaching and traditional offline classroom teaching, this paper optimizes the teaching design by taking Musculoskeletal Rehabilitation for undergraduates as the carrier, and reconstructs the course according to five parts: basic theory course, practical training course, standardized patient, case report, and course evaluation. Through analyzing the classroom quality and teaching effect, the innovation and practical effect of course reconstruction are explored. With students as the main body and goals as the guide, this model gives full play to the initiative and creativity of students, meets the individual needs of students at different levels, and provides reference ideas for improving the advanced, innovative and challenging creation of the course.

Key words Online and offline, Blended teaching, Course reconstruction, First-class undergraduate

1 Introduction

The *Implementation Opinions of the Ministry of Education on the Construction of First-class Undergraduate Courses* pointed out that, "Guided by Xi Jinping's thought on socialism with Chinese characteristics for a new era, a first-class undergraduate course required by the new era can be built by implementing the spirit of the 19th National Congress of the Communist Party of China, carrying out the fundamental task of cultivating morality and talents, regarding the effectiveness of cultivating morality and talents as the fundamental standard for testing all work in universities, and deeply exploring the ideological and political education elements contained in various courses and teaching methods"^[1]. Musculoskeletal Rehabilitation is a major course of rehabilitation therapy specialty that combines clinical ability exercise with basic knowledge, and it is a discipline of medicine that enables students to apply rehabilitation medicine expertise and treatment techniques to improve pain, physical structure abnormalities and dysfunction caused by acute and chronic musculoskeletal system injuries or diseases and increase the patient's life ability and bring them back to the family and society. The online and offline blended teaching of first-class courses is suitable for rehabilitation courses that pay equal attention to theory and practice.

With the comprehensive promotion of the national strategy to build a healthy China and actively cope with the aging population, rehabilitation medical care has become increasingly important in ensuring and improving people's livelihood, and the society has an increasingly urgent demand for high-quality rehabilitation tal-

ents^[2]. At present, there are many problems in rehabilitation service, such as large demand, poor service ability, insufficient talents and insufficient training ability, especially the lack of rehabilitation treatment talents, which makes the development of rehabilitation medicine in China slow down. In order to cultivate high-quality talents that meet the needs of the industry, the course team constantly updates the teaching concept, improves the teaching method and integrates the teaching content. The online and offline blended teaching mode is adopted to complement each other's advantages and cultivate students' innovation and initiative, help students connect with social needs from the aspects of knowledge, ability and quality, and solve the disconnect between theory and practice faced by medical students at present, the lack of clinical ability and other problems, thus cultivating more innovative and application-oriented rehabilitation talents.

2 Construction objectives and contents of online and offline blended teaching

Online and offline blended teaching is a new teaching mode that combines traditional face-to-face teaching and modern distance education technology. Its construction goal is to improve the utilization rate of educational resources, and enhance students' autonomous learning ability and information literacy while ensuring the quality of education and the learning effect of students. The course combines clinical teaching with basic teaching in order to achieve the goal of knowledge, ability and value in the teaching of rehabilitation medicine talents.

2.1 Establishing knowledge objectives Through the teaching of this course, students can systematically master the basic concepts of Musculoskeletal Rehabilitation, the most commonly used musculoskeletal rehabilitation assessment knowledge and musculoskeletal rehabilitation techniques commonly used in clinical practice, laying a solid foundation for later clinical study.

2.2 Building capacity objective Students can master the bas-

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ic knowledge, practical skills and clinical thinking of rehabilitation treatment of musculoskeletal diseases and injuries, and have the ability to solve problems of musculoskeletal diseases by comprehensively applying rehabilitation assessment and exercise therapy techniques. Students should be cultivated with clinical thinking ability of "finding problems and solving problems", and master the theory and practice system of sports rehabilitation characterized by sports therapy. The rehabilitation professionals who pay equal attention to theory and practice must be cultivated.

2.3 Establishing value goals Musculoskeletal Rehabilitation, as one of the core courses of rehabilitation specialty, aims at cultivating students' good professional quality, practical innovation and spirit of solidarity and cooperation in the construction of curriculum ideology and politics. Through appropriate adjustment of teaching content, ideological and political education is integrated on the basis of rehabilitation basic courses, which will enhance students' professional self-confidence and passion for rehabilitation, and cultivate students to establish excellent qualities of taking root in the grassroots and serving the society.

3 Implementation plan of online and offline blended teaching courses

3.1 Establishing curriculum ideology and politics system

According to the characteristics of rehabilitation therapy technology specialty, the content of curriculum ideology and politics is explored and condensed, to integrate socialist values and moral concepts into online and offline classroom teaching. Professional ethics and curriculum design are optimized, and the development process of patients' diseases and the spirit promoted by the older generation of rehabilitation experts in the field of rehabilitation are used as the ideological and political theme design content throughout the teaching process, so as to achieve value guidance, cultivate excellent talents who love rehabilitation and are creative, and contribute to "healthy China"^[3-4].

3.2 Updating teaching idea Using the course resources of "School Online", the study analysis, course ideological and political value guidance, independent learning, clinical thinking, technological innovation, scientific research feedback, formative evaluation and so on are all included in the online teaching content, which are carried out in the form of MOOCs, and students can learn by themselves through internet. "Student-centered" and "goal-oriented" online teaching methods are employed, and the relevant question banks of course knowledge points are set and updated, so that students can preview before class and review after class, and consolidate the basic knowledge points of Musculoskeletal Rehabilitation through the process of students' preview, study and review, so as to cultivate interdisciplinary talents with outstanding basic professional ability and independent learning ability.

3.2.1 Online course reform. Online course makes full use of high-quality course resources of "School Online", opens to students for network self-study indefinitely, establishes online courses and class QQ groups, and assigns the preview task list be-

fore class. Students complete the online courses and preview test content, and can inform the teacher in the message area when they encounter any problems in learning. By adjusting the pace of teaching, the situation of indoctrination learning and low efficiency in the past has been improved, and the micro-lesson video can be watched repeatedly, avoiding the boredom of students caused by a large amount of knowledge infusion, and improving the teaching effect.

3.2.2 Offline course reform. Offline course uses the CBL teaching method to carry out group discussion teaching and flipped classroom, so that students can be the "master" of the classroom, which can mobilize students' learning enthusiasm, and improve students' expression, analysis, response and communication and cooperation ability in group discussion and preparation of flipped classroom content. Musculoskeletal Rehabilitation will eventually be applied to the clinic. The classroom will mainly carry out group discussion teaching based on CBL teaching, and cultivate the students' ability to solve clinical problems independently and analyze independently. The classroom will be returned to the students, while the teachers play a guiding and supporting role. The teacher changes the way of offline teaching from cramming teaching to elaborating knowledge points, analyzes important and difficult points, and summarizes the knowledge system, so as to improve the teaching efficiency.

3.2.3 Practical training course reform. The teaching effect of practical training course must be strengthened. Inquiry skills and effective medical records are organized before class. During the practical training stage, students will be guided to participate in the whole process of clinical inquiry according to the contents of actual clinical cases, in order to strengthen their intuitive sense and cognition of inquiry, and cultivate their comprehensive analysis ability to collect effective information during inquiry and use basic knowledge to distinguish clinical symptoms and judge the condition. After class, the internship report will be completed and summarized according to the patient's diagnosis process and clinical diagnosis and treatment performance, so as to improve the training effect.

3.2.4 Conducting case reports. The smart classroom platform is used to carry out flipped classroom, and the case-based teaching method in the practical training process will implement online and offline teaching. After the completion of periodic classroom teaching, typical cases are selected, and students are clearly grouped to collect, sort out and report relevant materials of cases. Teachers play an auxiliary role in the process and guide students to make report courseware. Through case reporting and discussion, students will comprehensively apply basic knowledge and clinical knowledge, and integrate knowledge and practice, thus achieving the course goals of cultivating "clinical thinking ability", "independent learning" and "teamwork spirit", and improving their analytical ability.

4 Course evaluation method reform

(i) Online course: The preview video before class can refer to the

video duration watched by students and the chapter test after the video, accounting for 10%. (ii) Offline course: Class performance and in-class test accounts for 10%. (iii) Training course: Grades are given for the completion of internship report, accounting for 10%. (iv) Midterm test: A midterm test is given to students after half of the course is completed, accounting for 20%. (v) Final examination: At the end of the semester, there is a summative exam, accounting for 50%.

5 Significance of teaching construction

The construction and improvement of this course are carried out from the aspects of education concept, course objectives, course content, teaching methods and means, teaching team, teaching conditions, *etc.*, which is of great significance for the realization of healthy China strategy, the construction of rehabilitation medical personnel training system, and the training of rehabilitation compound talents.

5.1 Contributing to improve the construction of course system

(i) Renewal of educational idea: The teaching concept is changed to be student-centered from what teachers have taught to what students have learned. (ii) Textbook compilation: Combined with the practice of rehabilitation clinical work, as well as advanced rehabilitation concepts and technologies at home and abroad, teachers can participate in the compilation of Musculoskeletal Rehabilitation theory and practical training materials. (iii) Teaching staff construction. A plan to improve teachers' teaching ability is carried out. By carrying out training modes such as workshops and tutorial system, young teachers can grow rapidly and complete teaching tasks with higher quality. (iv) Strengthening course basic construction. The course standards, teaching plan library, exercise library, item bank and other basic resources are further improved. (v) Strengthening the construction of online course and virtual simulation experiment project: The construction of online course and virtual simulation experiment project can be further improved to fully engage in the course teaching process. (vi) Reforming the assessment mode: In line with the qualification examination of rehabilitation therapists, the objective structured clinical examination (OSCE) mode is adopted for assessment. The proportion of applied analytical questions in course final assessment is increased. The continuous improvement of the course system can stimulate students' learning initiative and innovation, cultivate students' ability of multi-disciplinary clinical thinking both in theory and practice, and improve many problems existing in traditional teaching, such as the disconnection between course teaching and clinical practice, the disconnection between course teaching and the latest scientific research, the passivity of students' learning, and the overlap of course content with other courses. It is helpful to establish the course system of rehabilitation medical personnel training which is compatible with the "biology-psychology-society-environment" medical mode.

5.2 Contributing to cultivate compound rehabilitation talents Rehabilitation medicine is a discipline integrating medicine, disability science, sociology, psychology, engineering and so on. By promoting education through research, and further promoting the reform of rehabilitation medicine education and scientific research, the teaching and scientific research content is combined and infiltrated each other, which can attract students to participate in the innovation of musculoskeletal rehabilitation, thereby cultivating students' thinking and lifelong learning ability, and promoting the implementation of the training program for top students and excellent doctors in rehabilitation disciplines. Finally, it will cultivate high-level rehabilitation compound talents who can solve the frontier problems in the field of rehabilitation medicine in the future and lead the development of the discipline.

6 Conclusions

The focus of the construction of a first-class undergraduate course with online and offline blended teaching is to use online teaching resources to integrate teaching concepts, teaching practicability and other aspects, which can not only guide students to take the initiative to learn, but also follow the law of medical education and the training goal of rehabilitation therapy talents. The teaching team constantly explores the feasibility of online and offline blended teaching in the teaching of Musculoskeletal Rehabilitation, promotes the deepening of our school's teaching reform, and provides a basis for further promoting teaching reform and talent training^[5]. The teaching team will also continue to update the knowledge reserve, improve the teaching level, and work together with the students to continuously strengthen the construction of the first-class major and first-class course of Musculoskeletal Rehabilitation, and cultivate applied rehabilitation therapeutics talents of the whole cycle of prevention, treatment and rehabilitation.

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