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Teaching reform of animal biochemistry

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Abstract
Animal biochemistry is an important professional basic course for agriculture, forestry, aquatic science, environmental ecology and other majors. It possesses many theoretical knowledge, and the knowledge points are abstract and obscure. In view of the current teaching situation and existing problems of this course, this paper reforms the course through teaching contents, teaching methods and student assessment methods, so that students can better learn independently, master and apply relevant basic theoretical knowledge, and improve the teaching quality of animal biochemistry.

1. Introduction
Animal biochemistry is a science that studies the chemical essence of animals and the changing rules of various chemical substances in the process of their life activities. It mainly uses chemical theories and methods to study the structural composition of animal micro fields, the relationship between metabolic processes and physiological functions. It is a compulsory professional basic course for the majors of animal science, animal medicine, animal pharmacy, animal husbandry and veterinary medicine, and aquaculture, and it is also a discipline vigorously developed by the state. However, the abstract conceptual knowledge of this course is difficult to understand, the material metabolism reaction is complex, the professional terms are obscure, the knowledge points are closely linked and easy to be confused, and the innovation speed is fast, which brings many difficulties to students' learning and teachers' teaching. With the normalization of epidemic prevention and control, the national demand for innovative talents is becoming stronger and stronger, and the social demand for comprehensive talents is growing. Moreover, the enrollment sources are wide and diverse, putting forward higher requirements for the teaching reform of biochemistry courses [1].

2. Common problems in animal biochemistry teaching
2.1. Class method
In the traditional teaching mode, teachers ignore the opportunity of students' active thinking and class participation. In the classroom teaching process, teachers are the main teaching means, while students only passively participate in the classroom to accept the knowledge points that they have never touched. For different teaching objects, the use of a single teaching method leads to students' low learning enthusiasm.

2.2. Class content
Most of the lecture contents in animal biochemistry textbook are outdate, and have not contain the latest technologies, latest examples and other knowledge points outside the books; The content is complex and continuous, and the subject is in the form of interdisciplinary, so the requirements for students' comprehensive knowledge reserve are very high, and the knowledge in the textbook covers a limited range. If it is not introduced and extended, it will not be related to the current life; it is easy for teachers to explain the subject according to the book in class, which is not attractive to students in the information age, and students with weak foundation cannot keep up with the rhythm, resulting in learning weariness.

2.3. Experiment

The traditional experimental teaching is basically a repeated verification of the course content. Most of the experiments are still lecture experiments and verification experiments, which are lack of inspirational and exploratory. Although it is conducive to students' mastery of the theoretical course, the short class hours are not conducive to the cultivation of students' innovative thinking and practical ability. Compared with the development of modern scientific experiment technology, the traditional experiment teaching is still lagging behind, which is not enough to deal with the current market situation that students will go to work and be competent for relevant work and carry out scientific research independently.

2.4. Evaluation

The assessment methods of traditional teaching courses are similar in each semester. They all adopt the distribution of questions, assignments and exams to measure the performance of the whole course. The final exam accounts for a large proportion, and the closed book exam is the final word. Some students with high scores only memorize by rote, and have a poor grasp of the required knowledge and knowledge modules of the course. There is an embarrassing situation of forgetting after the exam.

3. Teaching reform measures of animal biochemistry

3.1. Class method

Animal biochemistry course is characterized by abstract knowledge, complex metabolic reaction, obscure nouns, easy confusion of knowledge, rapid innovation and many contents. The traditional single teaching method cannot meet the teaching requirements, and a variety of teaching methods are proposed to be applied to the teaching of different chapters of animal biochemistry.

3.1.1. Flipped Classroom

Flipped classroom is also called flipped classroom teaching[2], which reverses the traditional teaching mode in which teachers' teaching is the main body, and students act as the main body in the classroom, with students' understanding of knowledge as the core and teachers' assistance to students' learning; By dividing group tasks before class, explaining knowledge points to students in class, mutual evaluation after class and other stages, teachers gradually guide students' ability of independent learning and self-evaluation. At the same time, students' participation in class is improved, students' speech ability and self-confidence are improved, students' interest in learning is enhanced, and students' comprehensive ability is greatly improved. It is applied to the content related to life and containing scientific principles, abstract concepts and emerging knowledge modules.

3.1.2. Case teaching method

Case teaching means is a teaching method based on cases. Teachers design cases to encourage students to find information to improve their enthusiasm and participation in class. For example, in the chapter of "glucose metabolism", they give examples of daily cases such as diabetes and hyperglycemia. Through case analysis, students can think about practical problems in life, broaden their thinking, helping students remember and understand, and strengthen students' impression of professional knowledge.

3.1.3. Multimedia resource class

Diversified teaching mode is conducive to improving teaching quality and teaching effect. By jointly applying" SPOC+ Massive open online course + Tencent conference + wechat group" to establish an integrated online teaching mode of instrument analysis course "pre class guidance and assistance + in class teaching and research + after class supervision and thinking", we have preliminarily practiced to improve teaching effect, improve online teaching ability, deeply integrate information technology and education and teaching, and accumulated valuable experience for offline teaching mode in the context of epidemic situation[3]. SPOC (small private online course) is a course for students on the school cloud platform using the resources of the Chinese University MOOC network (massive open online course) [4]. Teachers can design and build the source courses according to their own teaching content and progress; Background statistics provide data support for teachers' adjustment of teaching, management of students and analysis of learning situation. This mode has strong autonomy and flexibility, and is more closely combined with the teaching of the University, with stronger professionalism 'the online teaching mode of Internet + intelligent + technology provides data support for teachers' teaching optimization.

3.1.4. Mind mapping teaching

Mind mapping is a thinking "map" applied to memory, learning and thinking, which is conducive to opening the brain's diffusive thinking [5]. Mind mapping can connect the trivial knowledge points in biochemistry to form a knowledge network structure, which is convenient for students to sort out the structure, grasp the main line, remember the lines, and adapt to the chapters with closely related knowledge points and complex and confusing reactions. But, it puts forward higher requirements for the design and drawing of teachers' mind map.

3.2. Class content

Biochemistry covers a wide range of subjects, and the subject development is changing with each passing day. The textbook content limits its own attributes and cannot automatically obtain the latest research progress. The lagging content of the textbook is easy to cause poor information, which is contrary to the needs of cultivating social innovative talents and comprehensive talents. Teachers need to supplement the latest research progress in teaching. On the one hand, they can make up for the shortcomings of teaching materials that could not be updated in time. On the other hand, they can stimulate students' interest in exploring the academic frontier and increase the real-time and interesting nature of the classroom.

3.3. Experiment

In order to meet the market demand for students to go to work, be competent for relevant work and carry out scientific research independently in the future, higher requirements are put forward for experimental teaching. It is necessary to take design and innovation as the objectives of experimental teaching reform. The experimental content needs to highlight comprehensiveness and openness, and cultivate students' practical ability and innovative thinking [6]. On the basis of the original experimental teaching, students acquire basic experimental skills and complete comprehensive experiments by connecting several basic experiments under the guidance of

teachers. Students gradually adapt to biochemical experiments. Further, the teacher gives the experiment topic, the students consult the relevant literature, design the experiment steps, prepare the reagents and materials by themselves, operate the experiment independently in groups, and finally form the experiment report or academic paper. During this period, the teacher provides guidance and tries to cultivate the students' innovative thinking and preliminary scientific research ability through this kind of exercise. Constantly stimulate students' initiative, enthusiasm and creativity in learning, improve college students' scientific quality and cultural literacy, cultivate college students' innovation, entrepreneurship and practical ability, and promote the reconstruction and reform of the teaching mode of experimental courses.

3.4. Evaluation

A single rigid scoring mechanism is not enough to comprehensively test students' comprehensive ability. A new evaluation mechanism should be set up in combination with the reform of teaching measures. Comprehensive assessment shall be carried out according to students' attendance, enthusiasm of class answers, production level of PPT in class, scientific value of content, ability to explain literature, correctness of exercises after class, experimental ability, report writing ability, etc. these individual achievements shall be recorded at ordinary times, summarized and counted at the end of the period, and finally the comprehensive results shall be given [7].

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