



# The Cultivation of Students' Autonomous Learning Ability and the Construction of Evaluation System in Biochemistry Teaching

Lihong Han<sup>(✉)</sup>, Huancheng Su, Zhipeng Wu, Yibin Ke, Libin Lin, and Jingxia Zhang

Department of Basic Medicine, Putian University, Putian 351100, China  
vhanlihong@163.com

**Abstract.** Biochemistry is a basic medical course that medical students find very difficult to learn. Based on the teaching experience of clinical pharmacy and other specialties in preclinical medical college in recent, the author thinks that students should be guided to self-study in biochemistry teaching, the monitoring of students' autonomous learning quality can be started from four aspects: paying attention to cultivating students' interest in learning, improving students' desire and interest in autonomous learning, and teachers should change teaching methods, teachers should change the traditional spoon-feeding teaching concept and learn how to teach students how to "Fish"; teachers should not only focus on knowledge points in books, students should also be encouraged to participate in extra-curricular activities. We analyzes the actual teaching situation of this course, formulates the teaching reform thought, enhances the student independent study ability, in order to improve the teaching effect of medical biochemistry, it can lay a solid foundation for the cultivation of top-notch talents in medical innovation.

**Keywords:** Biochemistry · autonomous learning ability · cultivation · evaluation system

## 1 Introduction

With the advent of a learning-oriented society, life-long learning has become an essential quality for every member of society. In order to improve the teaching mode and enliven the classroom atmosphere of biochemistry, biochemistry teachers should reflect on the teaching plan to make more detailed plans and cultivate students' ability of autonomous learning, let the student carry on the inquiry independently in the classroom, the mutual discussion, the mutual exchange, arouses the student to study the interest fully, lets the student develop a good study habit, below is aims at the independent study to launch the research [1, 2].

Self-regulated learning ability is the basic ability that college students should have. The ability of self-regulated learning not only determines the current learning effect of college students, but also relates to their future survival and development. Now is the era of information-based knowledge economy, the speed of knowledge renewal is very fast,

if we do not adapt to this change, change the mode of personnel training and teaching methods, we train college students self-learning ability is not strong, will not be able to adapt to the future society. Therefore, it is an urgent problem to cultivate and improve the self-regulated learning ability of college students.

Return the classroom to the students, give them the initiative, give them enough time to learn independently, create an autonomous learning environment, and give full play to their learning consciousness and initiative [3].

## **2 The Influence Factors of Self-regulated Learning**

The level of students' self-regulated learning ability is affected by many factors, such as the level of students' quality, self-regulated learning ability, students' interest in self-regulated learning content, etc. Whether the application of network resources such as Super Star Learning, Chinese University moocs and other national quality courses, so that students have more learning resources for independent learning. The level of students' self-regulated learning ability will always accompany students' learning career in the future. The earlier students improve their self-regulated learning ability, the greater benefits students will get.

## **3 Common Problems in Biochemistry Teaching**

### **3.1 The Textbooks Have Changed a Lot and the Teachers Are Not Used to It**

In many processes, there are many biochemical principles and knowledge, scientific methods and dialectical materialism. For this reason, most teachers are not used to it, and it will take a long time to get used to it, as a result of the restructuring of the new textbooks, from the disciplinarity of the past to the emphasis on humanism of the present.

### **3.2 Teaching Content is Difficult to Master**

The new compulsory biochemistry textbook covers a wide range of topics and covers almost all aspects of the biochemistry textbook. When the content of more than one class, a class can be switched between multiple learning points, each learning point in the old textbooks have their own system. Extracurricular exercises are generally higher than textbooks, resulting in a lack of time and theoretical basis for students, teachers can not satisfy students' curiosity.

Not only do textbooks have a lot of content, but some topics are difficult to set up. There are many students in the comprehensive study, ordinary students can not meet the requirements, even after the exchange between students and teachers, there is not enough maturity in the transition period.

### **3.3 Can Not Use New Teaching Methods, Lack of Innovation in the Classroom**

In biochemistry teaching, we should use not only multimedia but also hot events and clinical cases in daily life. Not only limited to the fixed knowledge in the textbook, we should extend and extend the knowledge, pay attention to the cutting-edge scientific research. Also can carry out reversal classroom, by the teacher arranged in advance for students to prepare information, access to literature, summary reports and discussion and exchange. For the textbook “Observation and thinking” and “Activities and autonomy” column design, table design, students can not answer, and the teacher does not have the corresponding approach.

### **3.4 Teaching Evaluation Is Unscientific**

At present, the evaluation of the mid-term final examination and the evaluation of homework are regarded as the evaluation of Students’ learning. In practice, however, the assessment of knowledge and skill objectives is emphasized. Emphasis was placed on examinations, written tests and assignments, while assessment of processes and methods, emotional attitudes and value goals were shelved and the requirements of the new curriculum reform could not be implemented.

### **3.5 The Concept Hasn’t Changed Much**

Because teachers have the process of adapting to the implementation of the new curriculum, the traditional teaching methods are deeply rooted. Due to some teachers’ wait-and-see attitude towards the new curriculum and their lack of understanding of the curriculum idea and content system, the old curriculum system, teaching methods and evaluation methods are still used in the implementation framework of the new curriculum under the old curriculum.

## **4 The Foundation of the Cultivation Model of Autonomous Learning Ability**

### **4.1 Stimulate Students’ Interest in Creating Problem Scenes and Teaching Independently**

The essence of creating the problem scene is to reveal the contradiction of the things that cause the inner conflict of the subject, to reveal the contradiction, and to help stimulate the students’ Lenovo and imagination. However, due to the limited course time, teachers can also ask questions based on the biochemistry knowledge students learn and in the context of daily life and social materials [4–6].

### **4.2 Establish the Concept of Self-Regulated Learning**

In the learning stage, there is a more serious problem, that is, students think that biochemistry learning more boring, basically have no interest. This situation is caused by

the separation of biochemistry teaching from real life. For example, according to the biochemistry teaching content, fully excavates the biochemistry in the exploration teaching resources, creates the exploration teaching atmosphere for the student. The most significant characteristics of autonomous learning are its openness, practicality and autonomy, especially the openness of experimental autonomy.

#### **4.3 Stimulate Students' Enthusiasm for Learning and Implement Self-Directed Teaching**

Under the traditional teaching mode, the atmosphere of the teaching classroom is relatively monotonous and dreary, facing this kind of situation needs the teacher to carry on the improvement to it. Make students willing to think, willing to learn, willing to discuss, willing to reveal their achievements and confusion, and let students disagree with the teacher's opinion.

#### **4.4 Deal with Classroom Problems Reasonably and Carry Out Autonomous Teaching**

Treat Students' wrong answers well and create a safe psychological environment in class. If the teacher's question can be answered correctly, it is obviously meaningless. Students' answers will be different or even wrong from the "Standard answer". These phenomena are objective and normal. Teachers should not rush to negate or even criticize. Otherwise, the students will become nervous and afraid when they hear the question, and they will feel unsafe. Seriously concerned about students' problems, enhance students' initiative in classroom learning, encourage them and treat them seriously [7–10].

#### **4.5 Make the Most of Your Network**

Using the network information teaching method, paying attention to the transformation of the teaching role, the teacher from the traditional single teaching to the manager of the network teaching, paying attention to the student independent network teaching, according to the teaching train of thought of the teacher guidance, to adopt effective guiding methods to improve the teaching mode of financial aid. Combine with the content of the first-to-learn textbook, pay attention to the integration and improvement of the network information resources, make full use of the network information, pay attention to the intuitiveness and vividness of the teaching content, first of all, ensure the authority of the textbook. Shiun, combined with the teaching focus to analyze the train of thought. Teachers are facing great challenges and need to change the existing teaching methods, adopt the computer into the network information platform, pay attention to the design of courseware knowledge, adjust the educational concept, pay attention to broaden the horizon of knowledge, to meet the needs of the development of network teaching and improve the utilization of network resources in biochemistry [11–13].

## 5 Construct the Evaluation System of Autonomous Learning Ability

The evaluation system of self-study ability consists of three parts: the first part is the evaluation of Students' basic knowledge ability is 30%: students learn through superstars, and the system completes their own study, homework and discussion, give the corresponding scores, chapters of the self-test questions. The second part is about 20% of the students' Practical Learning Ability Evaluation: 10% of the students have completed the experiment, including the results and reports, and 10% of the students have been tested. The final examination accounts for 50%: the course theory content carries on the final examination, the question type includes the single choice, fills in the blanks, the noun explanation, the brief answer and the elaboration.

Under the background of the new curriculum reform, there are new requirements for teachers and students. There are also new requirements for biochemistry teachers, to actively transform the classroom model of biochemistry teaching. The biochemistry classroom must innovate the teaching pattern, change the traditional way, take the development student's practice ability as the key, must according to the new curriculum reform request, lets the student develop the independent study habit, for students to create a comfortable learning environment for students to lay a good foundation for future development.

## 6 Conclusions

In short, our traditional spoon-feeding teaching model has not been able to adapt to this teaching model. With the rapid development of teaching and research, it plays an increasingly important role in the construction of biochemistry teaching. A good self-learning ability training model will greatly improve students' autonomy, making it a positive, active and efficient lifelong learning [20, 29–34]. Purposeful, reducing fuzziness and uncertainty. Students can self-study, strength training mode and the construction of evaluation system will open up a set of teaching subjects. As a comprehensive talent training model, research provides a talent guarantee for the development of modern society. With the rapid development of medical science in the 21st century, medical knowledge is growing geometric progression, and the process of knowledge aging and renewal cycle is accelerating, more and more knowledge imparted to students in higher medical education can not keep up with the development of science, so the cultivation of self-regulated learning ability should be embodied in all aspects of medical education.

Biochemistry is an important basic medical course for students in medical colleges and universities. It is a subject to study normal life phenomena and pathogenesis of diseases at the molecular level. Its theory and technology are changing rapidly, it has penetrated into almost all fields of life science research and become the common language of life science. Improve students' interest and motivation. Strengthen the process of assessment, to avoid surprise review before the test. Change students' passive study habits, strengthen and guide students to use the knowledge to solve practical problems. Cultivate students' ability of self-regulated learning.

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