

Application of Growth Record Evaluation in Classroom Teaching in Medical Universities

-- Taking the Course of Medical Basic Chemistry as an Example

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Abstract: Growth record evaluation is an educational evaluation method based on the characteristics of the digital age, integrating information technology and evaluating students from both horizontal and vertical dimensions throughout the entire process and in all aspects. This article introduces the design and practice of growth record evaluation in Basic Chemistry for medical students. It is shown that this evaluation method can compensate for the problems of traditional evaluation methods and is conducive to promoting the all-round development of students.

Keywords: Growth record evaluation; Digitalization; Medical universities

1. Educational evaluation

Educational evaluation refers to the process of making value judgments on educational activities, processes, and outcomes using operational scientific methods^[1]. It has obvious characteristics of the times. Since the 20th century, with the vigorous development of modern educational technology, educational evaluation have also undergone significant improvements. In 2019, the key points of work issued by the Ministry of Education clearly pointed out that it is necessary to promote the deep integration of information technology and education teaching, and deepen the reform of educational evaluation system. In the Overall Plan for Deepening Education Evaluation Reform in the New Era in 2020, it is clearly stated that it is necessary to establish a scientific and era-appropriate educational evaluation system and mechanism.

2. Growth record evaluation

The evaluation of growth records originated from the archives in Italy during the Renaissance, where it is used to present their masterpieces. In the early 1970s, the use of archives began to be applied in education to record students' progress, learning process, abilities, and achievements. With the change in social talent views and the promotion of the integration of technology and education, the research has been increasing. However, for a long time, most of the research has been theoretical, and there is a serious lack of empirical research.

China conducted extensive practical research. In 2003, Zhang Lili^[2] introduced the theoretical background and main characteristics, providing a good reference for researchers. Subsequently, some other scholars conducted practical research from different subjects and different perspectives. These studies promoted the application in educational evaluation. However, it is mainly applied in primary and secondary schools in China, and there is less research in higher education. Du Yuanhong^[3] attempted to introduce this into the "Marketing" course, without considering the characteristics of the digital age and introducing modern information technology.

Based on years of teaching practice, the course of "Medical Basic Chemistry" combines current educational background and characteristics of the times, effectively integrates information technology, adopts the method of growth record evaluation based on data platform, pays attention to the whole process of students' learning and development, and understands students from multiple perspectives, layers, and all-round perspectives, thus stimulating students' various potentials and promoting their all-round development.

3. Design ideas of growth record evaluation in "Medical Basic Chemistry"

Medical Basic Chemistry is a basic course for clinical medicine majors. Through the study of relevant knowledge, students are equipped with basic knowledge of natural sciences; able to apply common scientific methods, raise scientific questions and discuss them. In order to effectively achieve this goal, it is necessary to adopt scientific evaluation methods.

The current evaluation of clinical medicine courses mainly adopts a closed-book final examination method. This evaluation method has the following drawbacks^[4]:

- (1) Focusing on results and neglecting the process. The randomness of an exam is relatively high, and it cannot fully reflect the true situ-

ation of students throughout the entire process of learning.

(2) Emphasis on theory and neglect of practice. The final closed-book exam often tests students' knowledge of theoretical knowledge through written exams, which cannot reflect students' practical skills in basic practical skills.

(3) Emphasis on knowledge rather than ability. Students often only memorize theoretical knowledge, but lack in the application of knowledge.

Based on the current actual situation, the course of "Basic Chemistry for Medical Use" has implemented a growth record evaluation method. This method has the following characteristics:

(1) Focus on the whole process evaluation. The growth record evaluation method makes full use of modern information technology, combining process evaluation and summative evaluation to solve the problem of "emphasizing results over process".

(2) Focus on practical evaluation. The growth record evaluation method fully emphasizes experimental classes, incorporating the entire process of students' participation in experiments to solve the problem of "emphasizing theory over practice".

(3) Focus on ability evaluation. The growth record evaluation method gradually cultivates students' practical abilities through after-class expansion, effectively meeting the requirements for the cultivation of clinical medical students.

4. Practice of growth record evaluation in "Medical Basic Chemistry"

The growth record evaluation method adheres to the student-centered approach, combines online and offline evaluations, and combines process and summative evaluations. The specific process is shown in Figure 1.

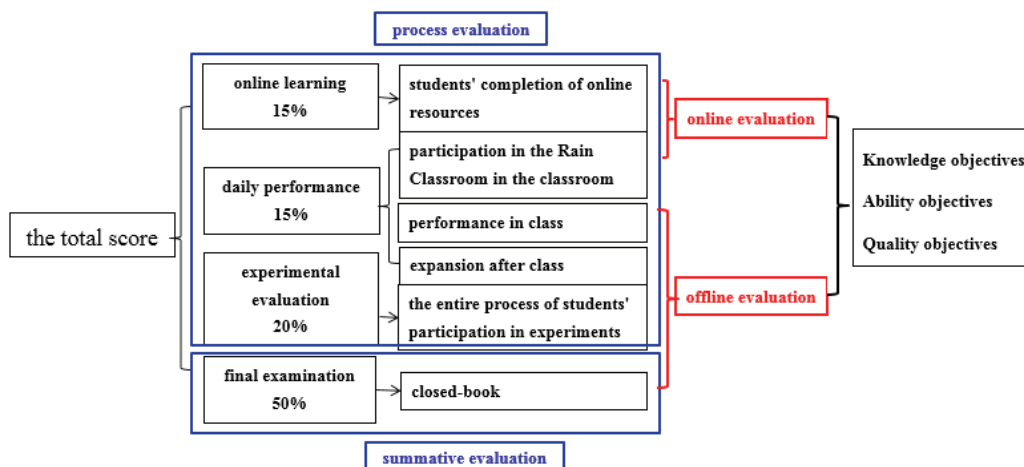


Figure 1 Growth Record Evaluation Method

Using the growth record evaluation method, the total score of the course "Medical Basic Chemistry" includes online learning (15%), daily performance (15%), experimental evaluation (20%), and final examination (50%).

Online learning belongs to online evaluation and process evaluation, mainly examining students' completion of online resources, including pre-class preview, test questions, interactive discussions, etc. The main focus is on students' learning habits and mastery of basic knowledge.

Daily performance includes both online and offline evaluations, which are process evaluations. It consists of three parts: ① participation in the Rain Classroom in the classroom, which belongs to online evaluation. It not only assesses learning habits but also assesses knowledge and ability. ② performance in class, which is offline evaluation. It is evaluated through group discussion, personal presentation and answering questions. ③ expansion after class, which belongs to offline evaluation. After learning each knowledge point, students will be assigned a corresponding knowledge expansion, which is evaluated by the group unit through literature review, problem analysis and problem solving to assess students' ability to apply knowledge.

Experimental evaluation belongs to offline evaluation and process evaluation, covering the entire process of students' participation in experiments throughout the semester, mainly including attendance, performance during the experiment, writing of experimental reports, and completion of after-class extensions.

The final exam is offline and summative evaluation that is closed-book. It not only tests students' mastery of knowledge, but also focuses on assessing their transfer and application of knowledge, highlighting the cultivation of abilities.

5. Summary

The growth record evaluation method has been recognized by students. They said that this evaluation method records every step of their

learning in the process of studying "Medical Basic Chemistry", leaving corresponding footprints for each learning bit, which makes students feel full of accomplishment, and also spurs them to participate in online and offline learning in a timely manner according to their learning progress, helping students develop good study habits and strengthen their self-management ability. Typical cases, group discussions and after-class expansion force students to consult materials, and help students complete knowledge transfer and application, and contribute to the cultivation of students' abilities. Comparing the mind maps, essays and other materials submitted by students at the beginning and at the end of the semester, it shown that students have made significant progress. The full attention to experiments and the evaluation of the whole process of experimental implementation have broken students' luck, and the phenomenon of idling in experimental classes. At the same time, the growth record evaluation method also puts forward higher requirements for teachers, effectively promoting the growth of teachers and curriculum construction.

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Knowledge:

1. Research and practice on "chemical" ideological and political courses through the AEROBIC seven step method (JYKTSZ202216).
2. Teaching and Research Project of Binzhou Medical University, Construction and Application of a "Course Ideological and Political" Cloud Platform Based on Mobile Learning and Blended Teaching (BYCJ202210).
3. Construction and practice of ideological and political cases in organic chemistry curriculum (JYKTSZ2021014).