

Thoughts on Constructing an Adaptability College Mathematics Classroom Based on Core Competence*

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Abstract—Core competence is the key behavioral ability of talents in 21st century, and adaptive education is personal education. Mathematics course take classroom as the main form of expression. It is necessary to reform mathematics classroom in effect. This article is divided into two parts. The first part analyzes the current situation and problems of mathematics classroom. The second part explores the practice of constructing adaptive classroom teaching based on core competence.

Keywords—core competence; adaptiveness; mathematics in university; practice

I. INTRODUCTION

At present, the educational practice of "individualized education", "designing courses for each student" and "differential education" pursued by various schools in China and foreign countries all include the core of "adaptive physical education" [1]. The most widely put forward is "individualized teaching." Although foreign higher education emphasizes individualized education and cultivates the ability of students to be independent, the lack of training in the use of students' mathematical knowledge has gone to the extreme of adaptability. In recent years, China's higher education has developed rapidly, but the connotation construction of many colleges and universities is relatively lagging behind, especially the basic course teaching — the knowledge-based teaching model is difficult to keep up with the pace of the times. In the mathematics classroom teaching of colleges and universities, many incompatibility problems between teaching and learning, and between learning and application are becoming more and more prominent. Economically developed regions such as Zhejiang and other places have developed rapidly. For example, when the XX College combines classroom teaching content with practice, increases practical training courses, and compresses mathematics classes. It is even more difficult to take into account the adaptability needs of students, which severely influences the teaching quality and effectiveness.

Chinese higher education workers have conducted in-depth and meticulous research on the characteristics of

higher education in China. First, Lin Chongde elaborated in the article "Core Competence Research for Students in the 21st Century" that the development of students themselves is closely related to the core competence of the discipline [2]. Subsequently, Zhu Hongqi discussed the core competence needs of talents and core competitiveness in the article "The International Perspective and China's Stance of Core Competencies" [3]. Then, Chen Dianbing and others mentioned in the article "Research on Cultivation of Core Competencies of Students through Classroom Instruction" that the improvement of teaching is guided by core competence ability [4]. However, these studies lack systematic and practical research on how to construct students' learning adaptability in public basic course teaching. The relevant research results are still in the theoretical research and preliminary exploration experiments. The research results of specific strategies that can be borrowed are still relatively few. Therefore, it is of practical significance to discuss the practicality of the university based on the core competence adaptability.

II. THE STATUS QUO AND PROBLEMS OF COLLEGE MATHEMATICS CLASSROOM

A. The Important Nature of the Mathematics Curriculum Itself

With the advent of the "Internet +" knowledge explosion era, the changes in knowledge and skills are escalating at an unprecedented rate, and the government's emphasis on and support for higher education has increased significantly. On July 29, 2010, the "Planning Outline of the National Program for Medium — and Long-term Education Reform and Development (2010-2020)" (hereinafter referred to as the "Planning Outline") specifically pointed out that "it will be of great significance to take social needs as the basic orientation, focus on improving students' ability, innovate talent training mode, and perfect diversified evaluation system" [5]. As an important basic course in the higher education system, college mathematics curriculum should reflect the principle of "necessary and sufficient" on the one hand, and cultivate the key ability of students on the other hand. This ability is the widest and most versatile ability. It is the most basic ability that people need in their careers and even in their daily lives, and can be reflected in specific social activities. The impact on human development is

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extremely far-reaching. And the cultivation of key abilities in mathematics curriculum is not a substitute for other professional courses.

B. Teaching Ideas and Methods Do Not Keep Pace with the Times

The information era teaching concept based on core competence as the standard is an important part of higher education. It is not only an important "tong" for cultivating the comprehensive quality and comprehensive ability of college students, but also a teaching philosophy that realizes the transformation of classroom teaching from knowledge teaching to competence-centered teaching, which is a new direction for the current teaching reform [6]. At present, many public mathematics classroom teaching in higher education institutions is still an isolated public basic classroom teaching, and has no connection with ability training. The teaching design of public mathematics curriculum is still largely teacher-centered, with exams leading the teaching, based on the teaching of knowledge points. The teaching design lacks of independent learning, heuristic learning and cooperative learning, and it also lacks of guidance for students to fully participate in the learning process with single teaching evaluation. In order to comply with the new requirements of public mathematics classroom teaching in colleges and universities in the information era, and based on the new situation of the development of applied undergraduate colleges, it is imperative to carry out the reform of public mathematics classrooms with core competence as the guide.

The core mathematics-oriented reform of public mathematics teaching in colleges and universities must closely link public mathematics teaching with adaptability, take social needs as the basic orientation, aim at the development of students' individuality, and build an adaptive mathematics classroom with characteristics according to the mathematics requirements of all colleges and colleges.

III. EXPLORING THE PRACTICAL THINKING OF CONSTRUCTING ADAPTABILITY CLASSROOM TEACHING BASED ON CORE COMPETENCE

A. The Basic Meaning of the Core Competence Adaptability College Mathematics Classroom

The core competence adaptability college mathematics classroom refers to the process of optimizing the students' differential needs by changing the mathematics classroom teaching method, which provides learners with strategies and methods according to their individual traits and needs for exploring and designing effective mathematics teaching. It requires to cultivate students' mathematics ability, mathematics knowledge, mathematics attitude, mathematics thinking, mathematics consciousness, and to make the university mathematics classroom more interesting, so that students can better participate in the classroom and promote the independent and healthy development of students.

B. The Applied Methods of College Mathematics Classroom Teaching Based on Core Competence Adaptability

Contemporary college students are a generation with individuality, a generation of digital aborigines, and a generation that dares to love and hate, so it is necessary to carry out core competence adaptability education. The followings are the implementation of the core competence adaptability mathematics classroom from several aspects to achieve its corresponding effects.

1) *Differential treatments*: Mathematics teaching needs to be oriented and can reflect the specific process of mathematics classroom. Adaptability classroom needs to change the "one size fits all" phenomenon, reflect the differences in mathematics classroom teaching, and cultivate students' corresponding mathematics abilities. Of course, based on the core competence adaptability classroom, in addition to cultivating the corresponding abilities of mathematics, it should also emphasize the moderate support for students with special needs, including the support of mathematics knowledge, extended learning (such as postgraduate tutoring, modeling coaching, mathematics competition, etc.), as well as the support for student emotional management.

2) *Carrying out diverse and colorful mathematics learning activities*: According to the constructivist learning theory and the theory of multiple intelligences, students have multiple tendencies, so they need to develop various mathematical activities, that is, activities of exchanges, special debates, after-school reflections, hands-on operations, and in-depth research, so that students of different intelligences can choose the corresponding mathematical activities to achieve corresponding teaching effect.

3) *Providing a mathematical platform with individualized representations*: The mathematics classroom has many theoretical derivations and logical proofs. If it added the link of students' representations, it will improve the effect of the classroom teaching. The adaptability classroom provides students with a platform for rare opportunities. Students can use their own mathematical model demonstration, PPT presentation, video display, animation display, image display and oral presentation, so that different types of students have the opportunity to display, which can achieve a good interpretation of the role of core competence in the mathematics classroom.

4) *Arranging assignments in flexible and diverse modes*: Compared to traditional mathematics classroom assignments, adaptability college mathematics classroom assignments are flexibility and diversity compared to traditional mathematics classroom assignments. It is more humane and more "people-oriented." Depending on the difficulty of the assignments, students have the freedom to choose, and they can do it all or part of it. The assignments

are also different. They can be paper-based, can be verbal, and of course can be calculated in person.

5) *Diverse contact methods*: The traditional college mathematics classrooms are mostly taught in lectures and are separated from the theory to connect to the practice. The adaptability college mathematics classroom that has been advocated today should be an open mathematics classroom, which can improve students' interest in learning and deepen their understanding of mathematics knowledge and mathematics application. This is an emotional experience of different moods. Of course, the adaptability mathematics classroom is mainly to cultivate its corresponding mathematics ability, so it is necessary to closely combine the students' professional studies, lay a foundation for the profession, and leading students to establish a relationship between mathematics, mathematics and engineering, mathematics and science, mathematics and liberal arts, and mathematics and art, thereby forming a corresponding cognitive structure. Of course, there are many ways to contact, such as online and offline, operation experiments, field trips, regular exchanges, visit surveys, etc. According to different courses of mathematics, it can be flexibly dealt with to improve the teaching effect of the classroom.

In order to promote the core competence-based practical research of the adaptability college mathematics classroom, it will be necessary to use the wisdom classroom to develop various online and offline mathematics teaching resources, and set the appropriate mathematics classroom teaching week to form a distinctive adaptability teaching model of the school to achieve the ideal teaching reform.

IV. CONCLUSION

Mathematics is an important basic subject of science and engineering. It still plays an irreplaceable role in the teaching and learning of its professional courses [7]. Therefore, it is necessary to pay full attention to the classroom teaching work of mathematics courses and the study of mathematics courses, constantly study teaching methods and teaching methods, and adapt to the teaching reform requirements in the information age.

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