Exploration and Practice of Mathematics Curriculum Reform in Higher Vocational Colleges

—Take changjiang institute of technology as an example

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Abstract: Curriculum reform is one of the most important ways for higher vocational colleges to implement the spirit of national documents. In order to better serve the quality-oriented education in higher vocational colleges and improve the teaching quality and information level, the diagnosis and reform work is of vital importance. The reform of higher mathematics diagnosis starts with the establishment of curriculum standards and curriculum construction objectives. It is necessary to have strong support from the information teaching platform to make real-time diagnosis and correction of classroom teaching. It is necessary to have in-depth study and practical innovation of the curriculum team, to give full play to the team cooperation ability, and to ensure that the goal of curriculum reform is achieved.

1. Teaching diagnosis and meaning

In order to implement the “Notice of the General Office of the Ministry of Education on Establishing a Diagnostic and Improvement System for Teaching Work in Vocational Colleges” (Faculty and Staff Office [2015] No. 2), “On Printing and Distributing <Guidelines for Diagnosis and Improvement of Internal Quality Assurance System in Higher Vocational Colleges The program (Trial) > Initiate the relevant work notice (the faculty member letter [2015] No. 168) document spirit, improve the quality of technical skills training, the diagnosis and improvement of higher vocational colleges have been implemented in an orderly and progressive manner . The meaning of teaching diagnosis and reform refers to the school's focus on professional setting and conditions, teacher team and construction, curriculum system and reform, classroom teaching and practice, school management and system, school-enterprise cooperation and according to its own school philosophy, school orientation, and talent training goals. Innovative, quality control and effectiveness, etc., to train the work elements, find the insufficiency and improve the work process. [] Advanced mathematics curriculum as an important public foundation course, its diagnosis and reform work must achieve the following two points: through the talent training target chain, implement curriculum teaching and diagnosis, to ensure that the training objectives are effectively achieved; through the school development target chain, implementation Course construction diagnosis and treatment to ensure that the construction objectives are accurately carried out.

2. The significance of the diagnosis and reform of higher vocational mathematics curriculum

2.1 Timely diagnose the shortcomings of mathematics teaching in higher vocational schools in our school

After years of exploration and practice, our school's vocational mathematics teaching has been greatly improved, but there are still some problems: (1) the content of the course is not targeted, and

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for some objective reasons, the high content of each major is learned. Similar to the similarities, there are only certain differences in the content of the management and engineering subjects. There is a general disconnect between the professional needs and the teaching content; [] the application is not strong, the teaching content is mainly mathematical concepts, mathematical formulas, mathematical theorems, etc. Mathematical calculation has become the focus of teaching, and the teaching of problems related to real life and profession is often neglected, students' ability to apply mathematics is not guaranteed; cultural is not strong, mathematics teaching is mainly the traditional "definition-theorem-formula The teaching model of the "example", mathematics culture is less integrated into the teaching process, which is not conducive to the sustainable development of students. (2) Teaching methods and methods are lagging behind. The mathematics classroom teaching adopts the simple combination of multimedia + blackboard. The teaching method is mainly the case introduction method, the practice combination method, etc., or the teacher-based, "cramming" teaching method is the main, the teaching effect is not good. (3) The assessment mode is single. The assessment is still the traditional usual + end-of-term assessment mode. Usually, the classroom attendance, classroom performance and homework are assessed. At the end of the period, the face-to-face examination is adopted. This mode is "re-resulting, light process", with a single content, outdated methods, poor assessment results, and Reflect the educational function of assessment.

2.2 Improve the information level of mathematics curriculum in our school, and improve the quality of mathematics teaching

Although there are already teaching applications and mathematics software assisted teaching in multimedia classroom teaching in our school, these techniques are simple and fragmented, just as an active classroom atmosphere and attracting students. s method". These information technologies have not been organically integrated, and have not fundamentally improved the way students learn, and have not fully exploited the advantages of modern information technology. [] In addition, the informatization construction of mathematics courses is relatively lagging. Firstly, there is no corresponding teaching software and hardware resources: mathematics teachers have weak informationization awareness and have not participated in corresponding learning and training; our school has an independent mathematics laboratory, but Equipment can't meet the needs of a teaching class. Secondly, the construction of mathematics curriculum website resources is lagging behind, the construction of excellent courses and micro-classes is lacking, and the resource sharing is also poor. It is impossible to construct autonomous learning mode for students. Finally, the construction of informatization mathematics textbooks is almost blank. The mathematics textbooks currently used are traditional textbooks. The content of the mathematics is not or rarely involved in other modern information technologies. These problems can be gradually solved in the process of diagnosis and treatment, thereby improving the quality of mathematics teaching.

2.3 Establish and improve the quality assurance system of mathematics curriculum in our school, establish the quality and culture awareness of mathematics teachers

Using diagnosis and improvement as a means to promote a complete and relatively independent self-quality assurance mechanism at different levels of our majors, mathematics courses, mathematics teachers and students, strengthen the quality dependence of all levels of the school, and form an effective quality of mathematics teaching. Guarantee system. In the process of diagnosis and treatment, let the mathematics teachers realize that their work is not only the basic work of preparing for class, class, final exam and year-end summary, but also recognizing the necessity of curriculum teaching and reform and curriculum construction diagnosis and reform. Incorporate into the scope of normalization work. Through the diagnosis and reform of mathematics curriculum, establish the quality and cultural awareness of mathematics teachers, and establish a set of "eight-shaped quality improvement spiral" mode of mathematics curriculum.

3. The higher vocational mathematics curriculum diagnosis and reform recommendations

3.1 Starting from the establishment of curriculum standards and curriculum construction goals, clear the content of diagnosis and reform of mathematics courses

The mathematics curriculum diagnosis and reform includes curriculum teaching and diagnosis and curriculum construction diagnosis and reform. First of all, the basis of curriculum teaching diagnosis and reform is the curriculum standards, and the rational formulation of curriculum standards is crucial. Our mathematics teachers in-depth department exchanges and discusses with professional teachers, and develops the curriculum standards that are consistent with the professional talent training program. Course standards include the following: course information, course nature and functional orientation, course objectives and content, course assessment and implementation requirements. The following points should be noted when writing curriculum standards: 1. Higher vocational mathematics courses have two major functions: cultural quality and basic tools. 2. The target narrative should be accurate and measurable. The knowledge, skills and quality that the student should master should be specific. It can be directly or indirectly evaluated. The degree of student achievement can be effectively measured, so that the professional training goal-course goal-classroom The teaching objectives “the three are self-contained and complement each other. According to the curriculum standards, the mathematics curriculum teaching diagnosis and reform content includes teaching mode, teaching method and teaching content design. The classroom teachers conduct classroom real-time diagnosis and reform, and the course team implements the final course teaching diagnosis and reform.

The curriculum construction diagnosis and reform is based on the establishment of the curriculum construction goal. The goal of the mathematics curriculum construction of our school is to first set a five-year general goal, including the following contents: the construction of teaching resources, the construction of teaching materials, and the reform and research of teaching modes and methods. According to the overall goal, combined with the actual situation of the year, the annual curriculum construction plan is formulated, including the specific task, the completion date and the responsible person. Based on the construction plan, the mathematics teaching team strictly implements the annual construction tasks of the curriculum, implements the monthly self-diagnosis of the construction goals, and ensures the progress and quality of the construction. [4]

3.2 It is necessary to have strong support from the information-based teaching platform to achieve real-time diagnosis and reform of classroom teaching.

Minister Chen Baosheng of the Ministry of Education once said that the diagnosis and reform is “starting from a class, a test paper, a paper, and a course.” As a theoretical course, the mathematics curriculum is the main position of the classroom. The traditional classroom teaching mode has not adapted to the development needs of modern information technology, and it is difficult to obtain real-time data in the classroom, which is not conducive to the need for diagnosis and reform. The mathematics team of our school has selected Learning Communication as the classroom teaching software of this course from the blue ink cloud class and learning communication software, and upgraded the traditional classroom teaching mode to the Internet + teaching mode.

Classroom teaching software can digitize the entire teaching activities, complete the student's homework, participate in class activities (discussion, test, brainstorming, etc.) with detailed real-time records. Teachers can re-recognize the class according to the students' real-time feedback and find out the problem. , targeted teaching and diagnosis. Teachers should prepare before class, diagnose after school, and make this process a normalization work, timely adjust the teaching plan and teaching content, continuously optimize the teaching process, and truly achieve student-centered, improve classroom teaching efficiency and teaching quality. .

3.3 Have deep learning and practice innovation of the course team, and give full play to teamwork ability

In order to achieve the purpose of diagnosis and reform, it is necessary to combine the characteristics of the times and make rational use of modern information technology, all of which require in-depth study by mathematics teachers. According to the expertise and needs of mathematics teachers in our school, the main person in charge of each task is selected: the person in charge of classroom teaching, the person in charge of the mathematical modeling contest, the person in charge of scientific research, and the person in charge of curriculum construction. Responsible teachers will be sent out to carry out relevant training and study, and then the responsible teachers will lead other teachers to conduct research and study, combine the actual situation of our school and classroom teaching to conduct practical research, give full play to teamwork and innovation ability, and ensure the smooth development of team work.

The normalization of the diagnosis and reform work should be carried out: the teacher implements the classroom real-time diagnosis and reform, the course team conducts the monthly inspection and diagnosis of the construction target, the summary diagnosis at the end of the period, and the comprehensive diagnosis and reform of the year-end teachers and the team. In order to make these tasks in place, it is necessary to improve the teacher management mechanism and innovate the teacher management model. Through the combination of qualitative assessment and quantitative assessment, on the basis of humanized management, the rewards and punishments should be clearly defined, and the teacher’s subjective initiative should be fully mobilized. To achieve the purpose of diagnosis and treatment.

4. The goal of higher vocational mathematics diagnosis and treatment

The target of diagnosis and reform is embodied in the “13th Five-Year Plan” and the annual curriculum construction goals. According to the actual situation of our school and the characteristics of the times, the objectives of the mathematics curriculum diagnosis and reform of our school include the following: 1. Teaching content design reform, stratification Select teaching content, design different teaching models according to different teaching contents; break the mathematical discipline system and logical structure, thus reduce the difficulty of mathematical theory knowledge and increase practical application; [] mathematical modeling ideas and methods or mathematical culture Knowledge is integrated into the construction of the course teaching content, achieving the integration of “teaching, learning, thinking and using”, and training students' mathematical literacy more effectively. 2. The goal of teaching resources construction, improve the hardware construction of mathematics laboratory; establish the application center of advanced mathematics and applied mathematics in our school; perfect the advanced mathematics course, establish the applied mathematics network course, including teaching courseware, teaching video, test paper, reference materials The online resource library is used to implement the information-based teaching mode based on the campus network throughout the school. 3. Teaching mode and method construction goal, realize the stratified teaching mode of mathematics teaching; build mathematical modeling laboratory, set up mathematics experiment class teaching; purchase or develop course e-learning materials, and develop mathematics teaching towards students' individualized learning direction It reflects the practicality of mathematics teaching, the integration of culture and fun; realizes the information-based teaching mode combining multimedia teaching, network teaching platform and traditional teaching; flexible use of task-driven, case introduction, group discussion and other teaching methods Try the “online and offline” hybrid teaching method, learn from each other's strengths, and teach students in accordance with their aptitude. 4. The construction of mathematics textbooks, revision of the existing “probability and statistics” and “computer mathematics” two textbooks; the preparation of high-quality textbooks with modern information technology; try to develop and design mathematics cloud textbooks.

5. Conclusion

The diagnosis and reform of mathematics curriculum in higher vocational colleges promotes the improvement and improvement of the teaching team and construction, curriculum system and reform, classroom teaching and practice through the diagnosis and reform of classroom teaching and curriculum construction. The diagnosis and revision work cannot be limited to the form, and the work is carried out centering on the purpose of diagnosis and reform. Finally, a diagnosis and treatment report is formed to guide the teaching practice and improve the quality of teaching. The diagnosis and revision work has a long way to go and requires us to constantly explore research and practice.

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