Based on the Hierarchical Classification of Higher Vocational Mathematics Curriculum Reform

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Abstract. Domestic many higher vocational colleges students in five-year higher vocational students, both have a three-year higher vocational students. Larger differences between the two is bound to cause many problems in the teaching of students, This paper analyzes the characteristics of the students in these two kinds of different educational system in combination with current status of Beijing electronic science and technology vocational college mathematics course reform, based on hierarchical classification method for high cohesion in higher vocational mathematics curriculum reform.

Introduction

To develop the secondary education, and actively developing higher vocational education, is the party and state to the adjustment of education structure is one of the major policy decisions. The five-year higher vocational education, construct is one of the important forms of higher vocational education in China, is one of the modern vocational education system in our country is an important part. The domestic many higher vocational colleges is to recruit a three-year higher vocational students, also recruit the five-year higher vocational students. If there is no scientific and reasonable curriculum system structure, large differences between the two types of students is bound to cause many problems in the teaching, is now in combination with the practical situation of Beijing vocational college of electronic science and technology, discuss the high cohesion culture foundation course reform.

1. The Characters of Candidates for a Five-year and Three-year Higher Vocational Students, Restricts the Development of Mathematics Curriculum Construction

1.1 The five-year Students Learn Basic and Habits, not Adapt to the Learning Situation in Vocational Colleges

Through the survey of part of the five-year students in our school, among them there are 39% of the students in junior middle school mathematics foundation is very poor, more than 70% of the students have no interest in learning mathematics, they don't have good study habits, 43% of students preview or review the mathematic of time less than 10 minutes a day, 50% of students do not have the habit of summary and induction; Among them there are 69.2% of the students can quickly adapt to higher vocational mathematics teaching methods and learning methods, thought of higher vocational mathematics teaching a class capacity is too big, progress so quickly that formula to remember, can't even use. Due to the junior middle school and the difference in the management of higher vocational colleges, they lack of the consciousness and initiative of learning in higher vocational learning, is not willing to work, work not just copy homework, lack of learning motivation.

1.2 A Three-year Students Come from Complex, Classroom Teaching is Difficult

Complex three-year higher vocational students in our school students, mainly comes from the high school graduates and the "three school life" (technical school, technical secondary school, high school), students are a far cry from a mathematical knowledge reserve, math quality is uneven,
bring a series of problems to the math class, if we also according to the traditional teaching mode of teaching, it is difficult to improve teaching quality.

1.3 The Difference of Five-year and Three-year Schooling of Higher Vocational Students

The five-year higher vocational students in the school system more than three-year higher vocational students for two years, divided into "secondary" and "vocational" two stages, the first two years as a "secondary" stage, after three years for "vocational" stage, the "vocational" phase of the curriculum needs and three-year vocational practice. The five-year mathematics curriculum in our school always adopt the "4 + 2" mode, i.e. the first four semesters "secondary" level mathematics course, the fifth semester 6 complete "vocational" level mathematics course. Two stage goal orientation, teaching methods are differences, how to better integrate, do two different types of "export" of higher vocational students, is a major challenge to the existing curriculum system.

2. High Cohesion of the Construction of the Mathematics Curriculum System

Our level of 13 three-year higher vocational students to carry out the stratified teaching reform based on the classification, to level 13 five-year higher vocational students to construct the "five years" curriculum, do the five-year higher vocational stage with three-year B layer, ensure the graduate with a three-year higher vocational students "export".

2.1 Mathematics Curriculum According to the Professional Classification, Reasonable Arrangement of Teaching Periods

A three-year course of mathematics known as "applied mathematics", journal of applied mathematics is divided into mechanical and electronic, information and three kinds of administration, including the applied mathematics (mechanical and electronic, information) courses in the first year of two semesters, the first 3 periods per week of the term, the second semester 2 periods per week, a total of 80 periods. Adopts "base + application module" teaching mode. The applied mathematics (administration) courses completed in the first semester, 3 periods a week, a total of 48 periods. Applied mathematics (electrical and mechanical, information) "course teaching contents according to the order of basic module and application module for teaching, and gradually improve the students' knowledge level, logical thinking ability and analysis ability to solve the problem of professional. Focus on the core content of higher mathematics foundation module: calculus, cultivate students' logical thinking ability and operation ability. Application module design and the model of professional integration, through the experiment practice class, doing math middle school mathematics, the core content of teach math in professional applications, learn to do academic report, both written and spoken to students study mathematics foundation for subsequent professional. Teaching method can be used on cooperative learning, discovery learning and interactive teaching, training students' critical thinking, and stimulate innovation capability.

The five-year mathematics curriculum contains the elementary mathematics and applied mathematics, two courses, divided into engineering (electrical and mechanical, information) and the liberal arts class (administration) two kinds. Which the elementary mathematics (engineering) "in the first to four complete the teaching mission of the term, each semester 4 lessons per week, a total of 252 periods and its subsequent course for applied mathematics B (engineering), 80 periods, in line with three-year school math courses for engineering. Of elementary mathematics (liberal arts) complete the teaching mission in the first three semester, each semester 4 lessons per week, a total of 252 periods and the subsequent course of applied mathematics B (liberal arts), 48 periods, in line with three-year arts school mathematics curriculum.

2.2 Three-year Adopts Stratified Teaching Pattern of Mathematics, A\B two Layers, the Five-year Higher Vocational Stage of Teaching into B Layer

Due to dispersion of our school campus teachers of mathematics teachers focus, we currently are students at the layered teaching mode, that is for students of different grade students with different
teaching goal planning, choice of different teaching contents, different teaching methods and evaluation system, is a kind of layered and hierarchical form of not divide into classes.

Teaching according to the proportion of classes, the class is divided into two layers A and B, adhering to the hierarchical content, target layer, evaluation principle of hierarchical layering, layering method, and counseling. High school graduates as the main teaching object class as A layer; With autonomous enrolment and "three school life" as the main teaching object class identified as B layer; Beijing liberal arts exam in individual classes, can also according to the B horizon implementation of teaching. A layer of the students are high school has learned part differential calculus, good mathematical foundation, strong ability to accept. B level of students in secondary or high school only learned the most simple derivative formulas or had not learned advanced mathematics, mathematics foundation is weak, accept ability is general, some already obtained certificate of computer, in this part of the students hands-on ability is good.

In carrying out stratification teaching, we put the "content, objectives, requirements, do not divide into classes" as the guiding ideology of the mathematics teaching reform, and according to the actual situation of the students at different levels to determine the teaching target and the teaching of the basic requirements. To A level of students, classroom teachers to improve the students' mathematics accomplishment, and ability to apply mathematical knowledge, mathematical modeling thought, standard mathematical contest in modeling and mathematical experiment methods into classroom teaching, and for machinery and electronic telecommunications post group combining professional and teaching content, the application of mathematics in each major. The B level of students, classroom teachers to strengthen the students basic knowledge, improve math skills to give priority to, avoid complex calculations, help them to adjust state of learning and to develop good study habits, stimulate interest in learning mathematics.

Level of the three-year higher vocational students B layer, can the applied mathematics course in higher vocational stage of learning into B layer teaching, smoothly from the transition to the higher vocational technical secondary school learning.

2.3 Of Five-year and Three-year Respectively Suitable for the Characteristics of Students of Higher Vocational Students Way of Evaluation

In classification layered teaching mode, nearly may shrink of five-year and three-year higher vocational students mathematics course content differences, but as a result of the five-year higher vocational students a good learning habit need to be further training, so in the process of examination, the five-year higher vocational students mathematics courses adopt the combination of formative assessment and summative assessment 5-5 evaluation system, with a three-year than 4-6 evaluation of higher vocational students, increased the proportion of formative assessment, pay attention to the mathematical basis for quality evaluation of the process of learning.

Conclusion

High cohesion in higher vocational mathematics curriculum reform, the preliminary results have been obtained at the same time, we have also seen. Students at the same level in the form of hierarchical not thoroughly, in the secondary school, after all moved into southeast campus needs further carrying out stratification teaching, explore placement at the layered teaching mode; Want to be in the five-year higher vocational teaching content, teaching method and evaluation method on continuous innovation, should pay attention to improving the students' interest in learning. Classification layered teaching mode is a revolution of the five-year higher vocational mathematics curriculum; it is worth we continually explore and research.

References


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