

Exploration and Practice of Mathematics Curriculum Construction in Higher Vocational Colleges from the Perspective of Hierarchy Teaching

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Abstract: Most of the higher vocational mathematics courses are faced with a group of high vocational students with unsatisfactory performance and unmotivated learning attitude. It is unrealistic for students to take the initiative to explore the mystery of mathematics knowledge and strengthen their autonomous learning ability in a short time. Therefore, adopting hierarchical teaching method, that is, higher vocational mathematics teachers to students, mathematics teaching content, teaching evaluation and other subjects to stratify, stimulate students' interest in learning, at the same time, according to their own learning foundation and learning status, targeted preview and online learning activities, and then lay a solid foundation for promoting the overall development of their own comprehensive quality. This paper mainly discusses the strategies of mathematics curriculum construction in higher vocational colleges from the perspective of hierarchical teaching.

1. Introduction

Stratified teaching, that is, multi-directional subjects such as teaching content, teaching practice and so on, can design teaching planning more effectively and more targeted students to achieve the goal of achievement management. Especially in the higher vocational mathematics class, the students' basic level is uneven, and the learning state is different. Through the penetration of hierarchical teaching methods, students can quickly enter into a state, or learn from each other with the members of the group, or find the object of competition to strive for progress, which is of great significance to stimulate the enthusiasm of higher vocational students to learn mathematics.

Stratified teaching, in the theoretical sense, means that teachers divide students into several groups with the same level according to the existing potential trend, ability level and knowledge structure system, so as to make different teaching and classification treatment. Stratified teaching, also known as ability grouping and grouping teaching, can be divided into different classes according to the students' different circumstances, and then classified according to the students' actual level of teaching [1].

In mathematics teaching in higher vocational colleges, adopting stratified teaching method can first ensure the quality of students and meet the diversity of students' quality development. In recent years, China's higher education structure has been constantly adjusted, higher vocational colleges continue to expand enrollment, the number of students increased, but the quality is uneven, which has a negative impact on the development of social talent reserves. Especially in mathematics teaching, if we still adopt the traditional teaching mode, it is difficult to meet the needs of students' employment development in the future, and to adapt to the diversified development of students' quality. Based on this, adopting stratified teaching magic, classifying the newly enrolled students according to the level of examination grade, carrying out the specific teaching planning and design classification, the students with weak foundation make up the foundation, the students with high ability do the high-level questions, so that the targeted and classified teaching can help the students to overcome the difficulties of mathematics more effectively, improve the difficulty of mathematics learning step by step, and meet their own quality needs.



Figure 1 Stratified teaching

Secondly, it is the important direction of curriculum reform. In recent years, people's attention to the cause of education has continued to improve, higher vocational colleges have also changed from the original specialized institutions of learning skills to promote the overall development of students' comprehensive quality learning position. Therefore, in addition to upgrading students' professional skills and meeting their professional needs, colleges and universities also need to let students master solid theoretical knowledge, cultivate their dynamic thinking structure, and highlight the importance of mathematics. This is also an important direction for educational reform. Based on this, the mathematics teachers of higher vocational colleges adopt the method of stratified teaching, which can most effectively alleviate the problems of different levels of students' mathematics knowledge accumulation is not in place, ability is not comprehensive, individualized mathematics learning and teaching methods, each student can actively study and think according to their own needs and will, and also have obvious advantages in deepening education reform and promoting reform efficiency.

2. The Present Situation of Mathematics Stratified Teaching in Higher Vocational Colleges

2.1. The Hierarchy of Students is Unclear

Stratified teaching is to divide students into different levels and implement differentiated teaching in class to meet the needs of students' quality development through horizontal and vertical knowledge output. It can be seen that stratified teaching needs a lot of investigation and analysis before it can be carried out effectively. However, some higher vocational colleges, in order to implement the educational reform policy more quickly, determine the students' stratification only from one or two test results, the good results are divided into one layer, almost divided into one layer, ignoring the students' daily study status, learning attitude, hard work direction and interests and other aspects of the investigation, the conclusion is too early, on the one hand hurt some students' self-esteem, on the other hand, the students' level is not detailed enough and perfect, not only will it not get the expected teaching effect, but also will make some students lose interest in mathematics, and the classroom efficiency is greatly reduced [2].

2.2. Stratified Teaching is a Mere Formality

In order to meet the needs of every higher vocational student's development of mathematics literacy, stratified teaching should be thoroughly divided to ensure the effect of targeted teaching and different teaching. However, at present, some colleges and universities only do some superficial work to assign different teachers to different levels of students, but these teachers do not choose the appropriate teaching content according to the quality requirements of students, it is not difficult to teach, students learn boring; or too much basic knowledge, learning too simple. This kind of teaching planning and design which ignores the diversity of students' quality development and individuation can not only meet the needs of stratified teaching, but also arouse students' antipathy, and it is difficult to really close the distance between teachers and students.

2.3. The Method of Stratified Teaching is too Single

Although the emphasis of stratified teaching is to carry out all-round stratification of students

and teaching content, it is only the first step in the implementation of the teaching plan. Or adopt the situational interaction method, so that students can deeply perceive the knowledge of spatial three-dimensional geometry, learn to look and map. or adopt cooperative learning methods to enable students to brainstorm and learn to listen and communicate. However, the actual situation is that some higher vocational mathematics teachers, content with the status quo, think that the students' levels can be divided into orderly lectures, and do not carry out a variety of teaching methods, adopt a variety of teaching means, the classroom model is single, even some teachers still adopt the "spoon-feeding" teaching model, students' initiative has not really been stimulated, even if students are stratified, it is difficult to improve the results.

3. Exploring Measures of Mathematics Classroom Construction in Higher Vocational Colleges from the Perspective of 3. Stratified Teaching

3.1. Student Stratification

In order to do a good job of stratified teaching, the most important premise is to realize the quality stratification of students. The teachers of higher vocational mathematics need to divide the students into three levels: A, B and C according to the students' learning needs, ability advantages and knowledge structure, among which the A level is the expansion layer, which mainly includes some students with strong learning ability, strong acceptance ability, correct learning attitude and desire to learn. It should be noted that these layers are not static, they need to be constantly changing and developing. In the process of practical learning, if teachers feel that some students have a good attitude and great progress in learning, it can be postponed upward. Or the original study is good, but can not keep up with or other causes of learning difficulties, can also be downgraded. To ensure that each group of students can become a class, we promote each other, work together [3].

Table 1 Student hierarchy

Layer A	Extension layer: good foundation, good learning attitude, high enthusiasm
Layer B	Ascension level: general basis, enthusiasm, general acceptance
Layer C	Basic layer: poor foundation, poor learning ability, low enthusiasm

3.2. Teaching Goal Stratification

Teachers need to effectively formulate three levels of higher vocational mathematics teaching objectives, including A, B, C three levels. In addition to completing the mathematics teaching plan in the syllabus, we need to design some high-level questions for these students to meet their needs for further studies. It is important to train students to use their knowledge, to be able to apply what they have learned to the real life, and to lay a good foundation for employment. Level C focuses on upgrading students' basic knowledge and completing the syllabus. Each level of teaching is different, but must satisfy the students desire to learn, so that they can feel the joy of learning and growth.

Table 2 Teaching goal stratification

Layer A	Cultivate students' autonomous learning ability and mathematics core accomplishment
Layer B	Cultivate students' ability to apply mathematics knowledge in practice
Layer C	Consolidate the student base and meet the syllabus

3.3. Teaching Process Stratification

First of all, in the basic knowledge, such as definitions, theorems, properties and other learning content, there should be stratification. For the A-level class, the teacher should ask the students to prepare the basic knowledge on their own, and the class can be done until the end of the class. For the B-level student class, the teacher should make a comprehensive explanation to help the students consolidate the foundation and make them understand the way to use the basic knowledge. For the C-level class, the teacher will have to separate each basic knowledge for detailed explanation, until

the students can master.

Secondly, in the explanation of examples, in the stratification at the same time need to do specific analysis. For class A students, the difficulty of the example should be gradually increased, in addition to the basic application and level of improvement, but also need to design some high-rise examples, so that students can broaden their thinking. For the students in class B, the difficulty of the teacher's example design should always be, a class can be a comprehensive problem, let the students on the basis of digestion and understanding of the follow-up study. For class C students, the teacher's example design should be as easy to understand as possible, so that they can apply the basic knowledge [4].

The last is the stratification of the job. The teacher's homework reservation should be based on the principles of pertinence, diversity, typicality, hierarchy and purpose. Teachers can also use the online teaching model to publish the problem to the network forum, so that students can choose their homework according to their own ability, so as to strengthen their autonomous learning ability.

Table 3 Teaching process stratification

	Class A	Class B	Class C
Layering of Basic Knowledge	Students have their own mastery	Full explanation	Detailed explanation
Example stratification	Focus on comprehensive elevation issues	Application questions	Basic test questions
Work stratification	Integrated integration operations	Learn to apply	Basic knowledge

4. Conclusion

From the perspective of stratified teaching, in order to improve the teaching quality of higher vocational mathematics, teachers are required to teach students and students.

In order to ensure that every student can follow the teacher's footsteps according to the plan, targeted, purposeful learning and reflection, improve students' autonomous learning ability while providing a forward direction for the reform and development of higher vocational mathematics teaching.

References

- [1] Wu Zhang. Application of layered teaching method in higher vocational mathematics teaching. Comparative Study on Cultural Innovation, vol. 3, no. 31, pp. 107-108, 2019.
- [2] Wang Guoan. A hierarchical teaching analysis of higher vocational mathematics courses. Textile Industry and Technology, vol. 48, no. 08, pp. 153-154, 2019.
- [3] Cheng Peng. Reasons and strategies of stratified teaching of higher vocational mathematics. Fireworks Technology and Markets, no. 03, pp. 139, 2019.
- [4] Guan Xiaona. Exploration and practice on stratified teaching of higher vocational mathematics. Mathematics Learning and Research, no. 12, pp. 17, 2019.