

# An Empirical Study on the "Divided Classroom" Teaching Mode of Higher Vocational Mathematics from the Perspective of Quality Education

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**Keywords:** Divided Classroom, Mathematics teaching, Teaching mode

**Abstract:** The disadvantages of traditional classroom teaching are becoming more and more obvious. It has been unable to adapt to the improvement of students' comprehensive quality and practical ability in higher vocational colleges. The "divided classroom" is a new teaching form, which includes the former teaching form and the discussion form, and then innovates on the basis of the second, so as to clarify the relationship between teachers and students. Traditional mathematics teaching in higher vocational colleges is mainly based on teaching method, which often ignores the subjective initiative of students' autonomous learning. The split-class teaching mode can combine the previous teaching form with the discussion form, and of course it can also separate the teaching from the discussion, which can bring enough learning time to the students. This article will discuss the mathematics teaching method in divided classes in higher vocational education from the perspective of quality education, which is different from traditional teaching, and explore the breakthrough in the dilemma of teaching mode innovation.

## 1. Introduction

Higher mathematics is an essential main course in the teaching system of science and engineering, and is the foundation of the follow-up courses. Then the traditional teaching of higher mathematics overemphasizes the systematicness and strictness of higher mathematics in the teaching content [1]. Traditional mathematics teaching in higher vocational colleges is mainly based on teaching method, which often ignores the subjective initiative of students' autonomous learning. Most of the higher vocational students have weak mathematical foundation and uneven levels. They are afraid of difficulties and are not confident in mathematics [2]. The split-class teaching mode can combine the previous teaching form with the discussion form, and of course, it can also separate the teaching from the discussion, which can bring sufficient learning time to the students [3]. Under the impact of the network and new media, the relatively boring classroom theoretical knowledge and entertaining information should be more colorful, which indirectly reduces the teachers' classroom attraction and makes the traditional lecture-based classroom more boring. A new teaching mode is urgently needed to change the current teaching dilemma [4]. It is especially obvious in mathematics classes with strong theoretical nature. Students are not active in attending lectures and there is no communication and interaction between teachers and students. These unfavorable factors all affect the teaching progress and teaching effect of mathematics courses in higher vocational colleges [5]. For higher vocational colleges, attention should be paid not only to the cultivation of students' scientific and theoretical knowledge, but also to the improvement of students' comprehensive quality and practical ability.

With the rapid development of the Internet, the channels for students to obtain information and knowledge are gradually diversified. The traditional classroom teaching mode can no longer stimulate students' interest in learning, and it is difficult for students to ensure that they can concentrate on listening for a long time. Divided classroom is a new teaching form, which includes the previous teaching form and discussion form, and then innovates on the sub-basis, so as to clarify the relationship between teachers and students [6]. The application of divided classroom in higher mathematics teaching can change the traditional teaching methods and learning methods, enhance students' initiative and interest in learning, enliven the classroom atmosphere and improve the

teaching effect [7]. In the face of the increasing number of students, the shortcomings and drawbacks of traditional classroom teaching have become increasingly prominent. The divided classroom, a teaching mode that reforms and innovates on the basis of traditional classroom forms, plays a positive role in improving classroom efficiency [8]. It is an urgent problem to explore how to effectively integrate the split-class teaching with the traditional teaching mode to form a practical teaching mode suitable for higher vocational education. This article will discuss the divided classroom teaching method different from traditional teaching under the vision of quality education, and explore the breakthrough in the dilemma of teaching mode innovation.

## **2. The New Direction of Teaching Mode in Efficient Classroom**

For a long time, the traditional mathematics classroom in higher vocational colleges is the main form of expression in higher vocational colleges. Teaching is the most important teaching behavior of teachers in higher vocational colleges. However, classroom discussion and practice have not received enough attention, and students' participation has not received due attention. Teaching is not a process of simply learning knowledge and skills, but a process of cultivating personality. The influence of students' emotional attitude, values and educational function need to be strengthened in the classroom. Traditional mathematics teaching methods in higher vocational colleges emphasize teachers' teaching, and students are often in a passive position [9]. This makes students' initiative is not strong, and it is difficult to cultivate students' ability of active thinking and exploration spirit. The problems existing in higher vocational mathematics classroom have great influence on teachers' teaching, which not only makes students unable to acquire useful knowledge for themselves, but also makes the teaching quality of teachers unable to be guaranteed. The purpose of dividing classes is very obvious. It can enliven the classroom teaching atmosphere and increase the interaction between teachers and students and students. It can be said to be a benign revision of the traditional indoctrination teaching mode. Such a form can increase the cognitive level of higher mathematics courses, and has a strong professional and logical.

The split-class teaching mode can effectively link up the relevant teaching links, thus completing the relevant course teaching. Because advanced mathematics has strong logicity, theory and strict system, it is difficult to understand many knowledge points. Therefore, teachers will first teach the key and difficult contents in the teaching materials. Through the teachers' explanation, students will master the basic contents so as to facilitate after-school learning. The efficiency of teaching does not mean whether the teacher has finished the teaching or whether the teaching is serious or not, but rather whether the students have learned anything or whether the students have learned well or not. Mathematics teachers should control the overall teaching direction and teaching progress of the class, introduce mathematics courses into the divided classroom, and make a good teaching plan in advance, extract knowledge points in the class, analyze the important and difficult points, and let students discuss. The teacher explained the main contents of the textbook in the mathematics class of higher vocational education, ensuring the teaching progress. In the divided classroom, teachers only need to teach the main contents and leave other contents for students to consult materials after class to learn autonomously, thus the amount of lesson preparation for teachers is significantly reduced. Before the beginning of the course, teachers need to explain such a teaching mode to students in a timely manner, and then enable students to realize the process of this teaching mode, thus enabling students to clarify their position in this mode.

## **3. Divided Classroom's Improvement of Mathematics Classroom Teaching Mode in Higher Vocational Colleges**

The split-class teaching mode has been widely used by educators since it appeared. This is because the split-class teaching mode can enhance students' awareness of active learning, promote the communication and understanding between teachers and students and students, and play a very good role in promoting students' confidence and determination in mathematics learning. Most

modern educational concepts are presented with learners as the main body, because different learners have different learning abilities. Only by taking learners as the main body of learning can we try our best to meet individual needs, so that learners can acquire knowledge and experience in learning, and cultivate good communication ability, thinking ability and excellent innovation quality. Teachers should mobilize students' enthusiasm for mathematics learning through appropriate guidance, and motivate students according to their characteristics of active thinking, wide range of knowledge and quick acceptance of new things [10]. When teaching in divided classes, teachers need to explain and teach knowledge to students in time, so that students can define the framework of knowledge and understand the key and difficult points in higher vocational mathematics classes. Teachers should adjust their role and position, pay attention to teaching content and teaching framework, and highlight the important and difficult points. At the same time, teaching materials such as courseware videos should also be sent to students so that they can review after class.

In order to make clear the acceptance degree and teaching effect of the split-class participation in higher vocational mathematics classes, we conducted a questionnaire survey of freshmen at the end of the semester. The anonymous questionnaire survey compared the traditional teaching mode with the split-class teaching mode to ensure the authenticity of the questionnaire. It is mainly evaluated by participating students' subjective feelings and objective reality of their own abilities after a semester of divided classes. A total of 100 questionnaires were sent out and 100 were recovered, of which 98 were valid.

The "divided classroom" teaching mode is a teaching mode suitable for the new teaching reform requirements. It encourages students to study hard and down-to-earth at ordinary times, thus spreading the efforts that should be paid for effective study throughout the semester and helping students to form good study habits. Secondly, focusing on group discussion in the teaching process not only helps to promote the interaction between students, but also enables students to realize the importance of independent speech and team cooperation. This shows that the divided classroom not only pays attention to the improvement of students' scores, but also pays more attention to the improvement of students' abilities in all aspects. For example, Table 1 shows the investigation of changes in students' learning ability after the "divided classroom" mode of teaching.

Table.1. Survey of student learning ability changes

Changes in learning ability	Learning ability has improved	Learning ability has been greatly improved	Learning ability remains unchanged
Number	92	26	6
Percentage (%)	93.9	26.5	6.1

From the summary of 98 questionnaires, it can be clearly seen that 93.9% of the students feel that "Divided Classroom" has improved their learning ability, of which 26.5% have greatly improved their learning ability, while only 6.1% have maintained their learning ability. It can be seen that "Divided Classroom" can not only improve students' learning ability, but also cultivate students' interpersonal communication and communication skills, which can also play a very good role in promoting their team consciousness, thus helping to improve students' comprehensive quality. For example, Table 2 shows students' evaluation and investigation on the Divided Classroom teaching mode.

Table.2. Students' evaluation of Divided Classroom teaching mode

Evaluation	Very good	Better	No difference	Traditional classes are better
Number	32	48	16	2
Percentage (%)	32.7	49.0	16.3	2.0

The survey results show that 32 students in the comprehensive evaluation think "divided classroom" is very good, accounting for 32.7% of the total number. 48 students feel that "divided classroom" is better, accounting for 49.0%; 16.3% of the students felt that "divided classroom" was no different from traditional classroom. Less than 10% of the students think the traditional class is

better. To sum up, 81.7% of the students agree that "divided classroom" is better than traditional classroom.

In higher vocational mathematics classroom teaching, divided classroom teaching mode not only emphasizes the leading role of teachers in classroom teaching, but also takes into account the guiding and promoting role of students' learning, emphasizing the systematic and coherent learning of mathematics knowledge, and taking into account the initiative of students' learning. Teaching is an activity jointly completed by teachers and students. Teachers are the designers of classroom teaching and students are the beneficiaries of classroom teaching. The absence of either side will greatly affect the teaching effect. In the divided classroom teaching, the teacher explains but does not exhaust the content. It provides students with preliminary knowledge, basic framework, key points and difficulties, thus greatly reducing the difficulty of students' self-study. Similarly, no matter how good the classroom design plan is, it cannot be implemented without the active participation of students in the classroom. Often see some teachers, in order to catch up with the progress of teaching, in the classroom, only to themselves gushing teaching, without considering the actual situation of students. Divided classroom pays attention to students' emotional experience, which makes students gradually become interested in higher mathematics, thus having the motivation to learn, actively cooperating with teachers, making the classroom more interactive and the atmosphere more active. Divided classroom encourages self-study after class, disperses the efforts that should be made for effective learning after class and internalizes them. It also reflects its own learning results in the form of homework. Through discussion and communication, it deepens the expression, understanding and sublimation of knowledge.

#### **4. Summary**

Mathematics courses in higher vocational colleges are abstract to some extent. It is very difficult to realize teaching objectives only by traditional teaching methods. At the present stage, the reform of classroom teaching mode requires innovation of classroom teaching mode, which can certainly increase the quality of school personnel training. The advantages of divided classroom can effectively improve the teaching quality and students' participation on the premise of ensuring the teaching progress. At present, the innovation of classroom mode is still in its infancy, so in order to achieve the same effect, it is necessary to perfect the current teaching mode in a timely manner. Divided classroom inspects students' thinking, ability and learning attitude from many aspects so that students of different levels can learn something. Divided classroom teaching mode is applied to mathematics classroom teaching in higher vocational colleges. It emphasizes the leading role of teachers in classroom teaching, as well as the guiding and promoting role of students in learning. It emphasizes the systematicness and consistency of mathematics knowledge learning, and also takes into account the initiative of students in learning. Teachers should flexibly integrate and adjust the teaching mode according to the actual situation, learn from each other's strong points, integrate with each other, and constantly innovate. Then we will continue to explore a teaching mode that is suitable for our actual situation, takes students as the main body, and adapts to the development of quality education and the needs of students' comprehensive ability cultivation. Through the research of divided classroom teaching mode, applying it to mathematics teaching in higher vocational colleges can effectively improve the teaching effect.

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## References

- [1] He Pengfei. Practical Exploration of the Teaching Model of "Divided Classroom" in Combined Mathematics Teaching [J]. Jilin Education, 2017 (22): 10-11.
- [2] HAN Xiu-ting. The Application of the Teaching Model of "Divided Classroom" in Ideological and Political Theory Courses [J]. Journal of Jinhua College of Vocational Technology, 2016, 16 (5): 26-29.
- [3] Li Xiaolei, Zhang Ling, Li Zhonghua. Research and Practice of the Teaching Model of "Divided Classroom" in Pathology of Nursing Students [J]. Continuing Medical Education, 2018 (10): 17-18.
- [4] Yue Xinxia, Ning Xiaowei, Huang Jiwei, et al. A preliminary study on the classroom teaching mode of "Textile Materials Science" based on the dichotomy classroom [J]. Textile and Apparel Education, 2017(6): 484-486.
- [5] Kang Yingchun. Exploring the strategy of mathematics teaching in junior high school [J]. New Curriculum Research: Late, 2018 (11): 8-9.
- [6] Qiu Aimei. The Idea and Practice of the Teaching Model of "Divided Classroom" [J]. Journal of Guangdong University of Foreign Studies, 2016, 27 (3): 140-144.
- [7] Xu Huijuan. Reflections on the Application of the Teaching Model of "Divided Classroom" [J]. Political Education Reference in Middle School, 2016 (15): 59-60.
- [8] Kang Yuchang. Application Research on the Teaching Model of "Dividing Classroom" [J]. Sports & Entertainment, 2016 (20): 144-145.
- [9] Kong Wei. A Preliminary Study of College English Classroom Teaching Model Based on "Divided Classroom" [J]. Journal of Lanzhou College of Education, 2016 (7): 138-139.
- [10] Wang Ruichen. Research on Junior Middle School Basketball Teaching Based on the Teaching Model of Divided Classroom [J]. Sports, 2018 (8): 154-154.