

Research on Higher Vocational Teaching Mode Based on Competitive Mechanism

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Abstract. How to arouse students' interest in learning so as to improve the quality of teaching has always been an important subject for higher vocational education. Practice has proved that the competition method proposed in this study is an effective way to arouse student's learning interest. Taking programming language courses as an example, it is proposed to introduce a competition mechanism in the teaching process, practicing follow teaching, and by treating each practicing topic as a competition, record the results according to the completion speed and quality, and rank them. For the top-ranked students, points will be added according to certain rules. Collecting personal grades for each class as a process evaluation which is an important part of students' grade. By introducing the competition mechanism, students' interest in learning can be greatly stimulated and the quality of teaching can be greatly improved.

1. Introduction

In the process of higher vocational teaching, due to the students in higher vocational college generally have a relatively weak knowledge base, limited learning ability, and lack of interest in learning. Especially as the course progresses and the increase of learning difficulty, students often gradually lose interest in learning. Once the students lose interest, they may give up going on learning.

If a course is not learned well, subsequent courses based on this course will also be affected. The teaching effect is greatly reduced, and the teaching objectives cannot be achieved at last. Therefore, how to keep students interested in learning, willing to learn, and able to learn is an important issue for teachers, and it is an important pre-requisite for ensuring the teaching quality and realizing the goal of training student.

Through theoretical research and teaching practice, it is found that the competitive teaching method can help solve the above problems, improve students' interest in learning, and achieve good teaching effect.

The good promotion effect of the competition method on teaching has made it widely applied in the teaching of various professional fields, such as the application of Hu Yiqun in the "auto repair professional course" [1]; the application in the teaching of "mathematics" [2] by Cui Shaomin. Cui Xue's application in "Spoken English" teaching [3], Li Fubing's application in "Physical Education" teaching [4].

The courses mentioned above all have a common feature, that is, they can practice while teaching, combine theory with practice, use competition method in practice, and stimulate students' interest in learning. The programming language courses in higher vocational

colleges also have the above-mentioned characteristics. Therefore, competition method can be used in the teaching process.

There are relatively few researches on the application of competition method in the teaching field of programming language courses in higher vocational colleges. Therefore, based on previous theoretical research, and some other suggestions[5] [6] [7], and personal practical teaching experience, it takes a programming language course as an example in the paper to explore how to apply the Learning by competing method to the teaching practice of programming language courses.

2. Learning by competing Definition

The competition method in this article refers to assigning a task to students to apply the core knowledge after it is taught, such as programming on request to obtain a specific result or implement a specific function. Then record the students' completion speed and correct rate, and give bonus points to students who do it quickly and correctly, such as the top 25%, according to a certain proportion; those who do not complete correctly within a given time will lose points according to certain rules; thus motivating students Competitive awareness and competitive action against completion speed and correctness, striving to complete tasks quickly and accurately.

Competitive teaching is to stimulate students' competitive awareness and action through this way, and each core knowledge point is taught by this method. One or two grades are recorded in one class, and all grades are summarized at the end of the semester as the

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students' process evaluation grades, which accounts for about 70% of the total grades of the course.

3.Theoretical basis

Ellen Mary Spencer and others proposed the following opinion in the book "How to Teach Vocational Education: A theory of vocational" [8]: Learning by competing is an effective learning and teaching method in vocational education, Constructive competition can be defined as a social and cultural phenomenon that can enhance learner's abilities, develops their ambitions and encourages their learning. It can motivate individuals to stretch beyond their own expected abilities.

In Chen Xuyuan's paper "One of the Basic Ways of Teaching Communication" [9], The positive effect of competition method on learning is proposed:

It can arouse and strengthen students' social motivation and improve communication efficiency;

Competition can enable students to correctly understand and evaluate themselves, thereby promoting students' healthy socialization process;

Competition can promote cooperation and improve students' group awareness.

Homans proposed the following six propositions that constitute the basic framework of social exchange theory[10]:

- Success proposition: In all the actions a person has done, if one of the specific actions is often rewarded, the more the person is willing to repeat the action.

- Stimulation proposition: If a person is paid for an action on one or group of stimuli in the past, then when the stimulus similar to the past occurs again, the person may take the same or similar actions as in the past.

- Value proposition: The more valuable the result of an action is to a person, the more likely the person is to take that action.

- Deprivation - Satisfy proposition: the more often a person receives a specific reward in the near future, the lower the value of the same reward will be to him.

- Aggression – Approval proposition: This proposition includes two sub-propositions: first, if a person's actions are not rewarded or even punished without expectations, the person will be angered and may commit aggression; second, if a person's actions are rewarded or rewarded more than expected More, or if the person's actions are not punished as expected, the person will be happy and may take actions agreed by others.

- Rationality proposition: In the face of various action plans, actors always choose actions with the greatest value and the highest probability of success.

According to the above proposition, especially the success proposition, stimulation proposition and value proposition. Practice while teaching. Every time students practice, record the correct rate and ranking of completion, rank them, and reward them with extra points according to their ranks. When students do it quickly and correctly, they are rewarded with rankings and bonus points, qualifying for the successful proposition and the value proposition.

When students are rewarded with ranking and extra points, the top-ranking students will feel a sense of success, and the lower-ranking students will be motivated. When they do the next learning task, they will have similar stimuli and still perform ranking and adding and subtracting points. The Student continues to strive for better rankings and awards to maintain interest and motivation in learning. It meets stimulus proposition conditions.

The competitive teaching method proposed in this study, according to the success proposition and stimulation proposition proposed by Homans, can effectively stimulate students' interest in learning and promote learning.

4.Implementation of Learning by competing method

This method was implemented in a test class of 21 students, a test class of 40 students and a comparison class of 20 students. Through teaching practice, it is found that teaching effect is better when a teacher leads a smaller class of about 20 students than a class of 40 students.

If a teacher teach a class of about 40 students, due to the relatively large number of students, it takes a relatively long time for the teacher to record the results. Even if each person takes 30 seconds on average, it will take 20 minutes to record all 40 people; each lesson is 45 minutes long. if students are given 10-20 minutes to do the task, and the teacher spends another 20 minutes to check, the teaching efficiency will be reduced; and the students who finish first will wait for a long time; for example, the first student who completes the task needs to wait for 20 minutes; Teacher may assign extended tasks to the students who completed first to solve this problem, but it will bring other problems. For example, sometimes it is necessary to explain the extended tasks. At this time, other students who do not have extended tasks cannot synchronize and will do other things, causing students to wait for each other for a long time and reducing teaching efficiency. If it is a class of 20 students, for each task, the teacher can reduce the inspection time by half, which can save about 10 minutes. In this way, for a class of 2 credit hours, if 2-4 tasks are distributed, 20 to 40 minutes can be saved. It has higher teaching efficiency.

Therefore, the competition method studied in this paper is more suitable for teaching classes with about 20 students. The following is a comparison of the teaching effect with the test class that implements the competition method and the control class that does not implement the competition method. The data in table 1 :“Comparison of the teaching effect” are the number and proportion of each task completed:

Table 1. Comparison of the teaching effect

task	Completion rate in test class (21 students)	Completion rate In comparison class (20students)
task1	21 (100%)	15 (75%)
task2	20 (95.2%)	13 (65%)
task3	19 (90.5%)	13 (65%)
task4	18 (85.7%)	12 (60%)
task5	19 (90.5%)	14 (70%)
task6	18 (85.7%)	13 (65%)
average	19 (91.3%)	13 (66.67%)

According to the above comparison, the competition rate of tasks in the class applying the competition method is significantly higher than that in the ordinary class, and more students can maintain their enthusiasm for learning and complete tasks.

The students in the test class are divided into three levels. There are 12 students in the first level. Almost every time they complete the task very seriously, their ranking may change frequently. In order to effectively motivate students, the top 6 students who complete the task correctly are stipulated. About half of the students at this level can get extra points each time; the reason for the requirement of about 6 students: If there are too many students and there is no competition between the same levels, students know that they are always adding points. If the number is too small, the number of extra students will be reduced, the number of students who will be encouraged will be relatively reduced, and the scope of encouragement will be narrowed. Some students may always Failure to reach the level of bonus points, lack of incentives, and inability to effectively stimulate students' interest; it is stipulated that about 6 students will get bonus points each time, which not only ensures the competitiveness among students, but also motivates students, and enables each student to have the opportunity to add points, and every student at this level is motivated so that they can actively learn.

Tasks are graded on a five-point scale, and one point is added each time. In the actual teaching, everyone has a time when they are ranked in the top 6 to get bonus points; when they get bonus points, they will want to keep it next time, and those who don't get bonus points will work hard to faster and better in the next task, and strive for extra points, so their ranking is dynamic, reflecting their hard work and competitive learning status. The following table 2: "Situation of students getting extra points" is the statistics of 12 students getting extra points in the six tasks, and the difficulty of the six tasks gradually increases:

Table 2. Situation of students getting extra points

task points	T1	T2	T3	T4	T5	T6
S1	√	√	√			
S2	√	√		√		√
S3	√	√				√
S4			√			√

S5	√			√	√	√
S6	√			√	√	√
S7			√	√	√	
S8	√	√	√		√	
S9		√		√	√	
S10			√		√	
S11		√		√	√	√
S12	√	√				

It can be seen from the table that each student can get incentives when they have extra points; thus, students can maintain their interest in learning, compete with each other, and create a very active learning atmosphere.

There are 8 students in the second level. They occasionally rush to the top 5 to get extra points, but most of the time they are ranked in the middle. They are students with relatively weak learning ability. If they break into the top 5, in addition to extra points, they may be given special praise and encouragement; they need to pay more attention and counseling at ordinary times, so that they can keep up with the teaching progress and learn the course.

The last one has the weakest learning ability and needs special supervision and guidance to complete the learning tasks.

It can be seen from the above data that competition method can greatly increase students' interest in learning and improve teaching effects.

At the same time, teaching practice shows that this method is temporarily not suitable for classes with more students, because a teacher cannot take care of more students with middle and lower learning abilities, which will cause more students with weak learning abilities to fall behind, and there is no guarantee that students can learn.

5. Conclusions

The competition method is applied during teaching to achieve better teaching effect. This method could be extended to homework, and each homework is evaluated. Students who submit on time and have high-quality homework are given extra points and praised and encouraged in the classroom. Through this method, the teaching effect can be greatly improved, the teaching objectives of the course can be achieved, students can maintain their interest in learning, make full use of class time and after-school time to learn, and improve their ability. It's a great way to accomplish training goals.

At the same time, in the process of the class task scoring, the teacher can guide each student, so as to realize the interaction and communication between teachers and each student. This kind of one-to-one guidance and communication can enhance the emotions between teachers and students, so that students can feel the guidance, help, attention and care of teachers, thus helping to stimulate students' learning enthusiasm and initiative from another perspective.

At present, curriculum ideological and political education is generally advocated. This teaching method provides a seamless connection for curriculum ideological and political education. When inspecting and guiding students to complete tasks, it can increase the opportunities to communicate with students and gain an in-depth understanding of students' ideas, so as to carry out the education and guidance of scientific thinking methods and socialist core values at any time in the process of communication.

When applying this method, the teacher should take care of enabling each student to gain a certain sense of accomplishment and self-esteem in different competitions. Therefore, the evaluation strategy can be diversified. In addition to the bonus points mentioned above, for students whose learning abilities are in the middle at the end, progress bonus items can be designed to encourage students' progress in a timely manner, so that they are more willing to participate in Learning and keep moving forward after being encouraged. Under such encouragement of this method, a student in the experimental class often completed the task slowest at the beginning of the semester, and was able to enter the list of bonus points at the end of the semester.

The disadvantage of this method is that when some students' grades are recorded, other completed students need to wait. Although additional supplementary exercises will be assigned to them, it still affects the synchronization of teaching. How to reduce the recording time is a problem to be solved. In the follow-up research, we can design an electronic record score system and apply artificial intelligence technology to realize automatic recording score and improve efficiency; and also can divide the task inspection, assuming there are three tasks, and check a different third of each task in the classroom., so that all students can be checked in each class, and finally all the homework submitted by them can be checked after class, which can also improve teaching efficiency while improving students' interest in learning; online teaching platforms can also be using, Let students upload it to the platform after completion, and the order of submission can be recorded. Students who complete first can help students who have difficulties and give extra points for it.

In view of this method, which is not suitable for a large class of about 40 people, if the above-mentioned electronic recording score system and face brushing technology are used, or the results of students' schoolwork are checked by spot checks, or the existing online teaching platform is used with standardizing the task answers, it can also solve the problem of the large number of students resulting in the teacher Checking students' completed tasks in class may take a lot of time.

In addition, when encountering negative factors put forward by the other three propositions in the previous Homans's social exchange theory: deprivation-satisfying proposition, aggression - approval proposition, and the rationality proposition. How to minimize the negative impact is also a question worth continuing to explore in subsequent research.

In conclusion, teaching methods based on competition mechanism can significantly improve students' interest in learning and improve teaching effect in higher vocational computer language teaching. This method can also be extended to other similar course teaching processes. At the same time, with the continuous application, we can constantly summarize relevant experience, make use of the current rapidly developing science and technology, and constantly improve competitive teaching methods to make them more perfect, so as to be more effective, play a greater role, and achieve better teaching results.

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