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Analyze the Educational Methods of Using Experimental Teaching to Cultivate Innovation Ability

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Abstract: This paper mainly describes the importance of experimental teaching in students' theoretical knowledge and practical skills, especially the important contribution of experimental teaching in cultivating students' scientific spirit and innovation ability. This paper will analyze the common problems exposed in the traditional experimental teaching, and put forward the corr7esponding reform model, so as to help improve the students' creative innovation ability of new methods and strategies.

Keywords: Experimental Teaching, Innovation Ability, Educational Methods

1. Introduction

The experimental operation of the school experimental curriculum not only accumulates practical experience for the students, but also deepens the knowledge and understanding of textbook theory, and we also hope that students will have in-depth thinking on the common role of theory and practice in the experiment, so as to realize the improvement of innovation ability. At the same time, through many experimental operations, students' enthusiasm for learning can be greatly improved, their scientific spirit can be very good training, but also enhance their ability to find problems, evaluate problems, analyze and solve problems, for the social innovation talent to lay a solid foundation[1]. However, the experimental classes in many schools are seriously affected by traditional teaching thinking. Either the experiment has become a copy and imitation, or the form is greater than the content, and it has become a foil for the diversity of education and the strength of teachers. However, the school experiment is related to the actual working ability of the students after they are transformed from students to social people. Therefore, the experimental class is very important for students. In terms of the development status of experimental courses and how to develop good courses, this article is to make the experimental courses really enhance the students' innovative ability, rather than waste social resources and students' precious time as a gimmick of school publicity and education[2].

2. Problems in the Development of Traditional Experimental Courses

2.1 Experimental operation template

According to the experimental data or theory, the teacher makes the experiment operation manual, so that all students will conduct the experiment strictly in accordance with the experimental operating manual. As a result, every student does exactly the same experiment, because they all use the same things, the same movements, the same program, and even the experiment time is almost identical. Finally, it is the data that everyone gets almost the same, and the data is processed in the same way, and the experimental results are evaluated[3]. This kind of experimental teaching is centered on the teacher, but it completely neglects the students' mastery and flexible use of theoretical knowledge, which not only negates the students' subjective initiative in the experimental process, but also misses the opportunity

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for them to "create" problems, find problems, analyze problems and solve problems. This result is not good for students' innovative spirit and innovation.

2.2 Experiment content is outdated

In the vast majority of schools, the experimental curriculum is not a single course, but with the corresponding theoretical curriculum unity, in the theory class to a certain stage, will arrange the corresponding experimental operation, so that students have the opportunity to personally verify the relevant theory, so that students have a more profound understanding and understanding of important theories or conclusions. In fact, in the actual teaching, the experimental curriculum is not given the attention it deserves, and it has been completely reduced to one of the teaching procedures in the theoretical curriculum, which has been seriously marginalized. In the process of scientific development, although the theoretical knowledge has not changed much, but the experimental equipment is becoming more advanced and the experimental methods become more and more optimized, however, the experimental equipment that students in school students are still exposed to in the experiment is still out of date. For such experimental courses, the curriculum practice can not keep pace with the times, not conducive to the cultivation of students' innovative ability.

2.3 Stereotype of experimental examination

Because the students' experiments are done step by step according to the experimental operation instructions, so everyone's experimental methods, processes, data, results analysis and evaluation are almost identical, so the teacher saw the experimental reports content are similar. The assessment teacher can only give the results in terms of the seriousness and cleanness of the experimental report, but this approach deviates from the original intention of the experimental curriculum, which is of little help to the students' ability to innovate.

3. Experimental teaching methods and strategies are helpful to cultivate students' innovative ability

3.1 Changing educational concepts

We should use the pilot operating instruction manual prepared by the teacher as a reference manual for students to do the experiment, not as a model, only to explain the situation that may lead to danger or cause damage to the experimental instrument, mainly on the combination of theoretical knowledge and practical operation of the part of the focus. In this way, in the course of experiments, students in compliance with the safety operating procedures and laboratory system under the circumstances of the experiment, there are debugging experimental conditions and self-exploration experimental methods of autonomy, coupled with the experimental teacher's on-site answer to the puzzle, students' subjective initiative can bring a great improvement in their innovation ability.

3.2 Reconstructing Experimental Teaching System

We compare the importance of experimental courses and theoretical courses, no longer treat them differently, and keep close to the requirements of the development of the times for talents and scientific and technological progress to carry out experimental teaching reform. First of all, we should pay attention to students master the theoretical knowledge and the basic skills of experiments, secondly, we should cultivate their experimental comprehensive ability and self-design ability, and finally guide students to think and explore, in-depth study of the improvement of innovation ability training[4]. We use this new model of subverting tradition and gradually improving students' experimental ability and level in stages, and at the same time solidifiing the students' theoretical discipline base, which will have a positive impact on the development of students' independent thinking, rigorous style and innovative spirit.

3.3 Change passive to active

The traditional experimental teaching mode is based on knowledge as the main body, students as object, teachers play the role of catalyst, and the school system plays the external conditions that promote experimental conditions. In such an experimental teaching mode, there is no subjective closeness between subject and object, which relies solely on the power of catalyst and external conditions to force the subject and object to make contact. And in the main and object contact process, because the experimental operation process is all stipulated, the object is completely in a passive position, neither can produce strong interest, can not bring fresh knowledge, so there is better than nothing at the same

time also brings depression to the students psychologically, but not conducive to their exploration of the development of innovative spirit. The reformed experiment is very different, it is the students as the main body, under the guidance of teachers to carry out experiments, so that students take the initiative to understand the experiment, design experiments, explore the experiment, gradually deepen, gradually develop innovative habits, so that innovation ability becomes the result of water.

3.4 Methods of modern experimental course teaching for cultivating students' innovative ability

In view of the problems that are prevalent in schools at all levels at present, we must take seriously, deeply reflect, pay attention to the cultivation of students' professional skills and practical new thinking ability, persist in not disengaging from reality, not greedy for immediate interests, and gradually change the model of experimental courses, so as to explore a real cultivation of solid professional knowledge, strong innovation ability, rich spirit of exploration of talents[5].

3.5 Gradually updating the teaching concept

In order to improve the comprehensive quality of talents and realize the all-round development of talents, we must keep up with the requirements of the times and actively explore new and more rational experimental curriculum teaching models. Whether the school or teachers should be in line with the responsibility to students, responsible for education, responsible attitude towards society, their respective positions, not afraid of trouble, can and dare to realize from the heart of the past experimental teaching curriculum shortcomings and backward parts, all from the actual point of view, according to the teaching objectives set by the higher education department to explore appropriate teaching methods. It can not only enable the goal of teaching practice activities to be completed without any discount, but also to the courage to explore, pioneering and innovative aspects to give students an example.

3.6 Moving towards social practice

As we all know, the importance of the combination of theory and practice. But very few people can really combine theory with practice in a planned, organized and systematic manner. In any industry, whether it is practice or theory, there is a certain systematic, if you want to become the industry's technical skills, then we must systematically learn theoretical knowledge, systematic participation in practical exercise. If there is no practical ability to support theoretical knowledge, then practical problems cannot be solved. School education is a place where students can systematically study knowledge, so theoretical knowledge and practical ability should be fully studied and exercised[6]. Various forms of experimental courses, such as laboratory operation experiments, relevant professional units of internship, practical professional environment teaching, etc. can be included in the experimental curriculum teaching content. Whether knowledge or skills, the ultimate goal of education is to contribute to society, and this primary purpose cannot be changed at all stages of teaching purposes.

3.7 Join fresh faculty

In the education industry, any reform should be fruitful, and there will be no shortage of fresh teachers. Only by adding new teachers and funds can the objective conditions of experimental teaching be changed, and the space for new teaching ideas and new practical ideas can be created. After a period of practical testing, the performance of traditional experimental teaching and new experimental teaching in the cultivation of students' creative innovation ability is obvious, and the vitality of the new concept can be used to improve the environment of experimental teaching.

3.8 The Government actively guides

In cultivating students' ability to innovate, schools play a very important role, but also inseparable from the government's participation, advocacy and encouragement[7]. In formulating policies and financial support, the government is conducive to creating a lively atmosphere of entrepreneurship in the whole society. While guiding and leading the school experimental curriculum teaching to the correct direction, it can also make colleges and universities more conducive to cultivating students' innovative ability.

4. Conclusion

In an age of great emphasis on knowledge, knowledge can be used to make a contribution to the economy. With the rapid development of science and technology, the times are moving stars, and society attaches more importance to creative ability and innovative talents. As the main position of education, the cradle of systematic learning knowledge, but also to quickly follow up the needs of the times, reform the experimental curriculum teaching model, so that the experimental curriculum closely combined with the most advanced research progress, training a solid foundation, rigorous style, thinking science, innovative spirit of high-quality integrated talents.

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