

The Exploration and Practice of Diversified Teaching Mode on University Physics

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Abstract

University physics is an important public basic course for science and engineering universities. It has the irreplaceable role compare with other courses in improving students' scientific literacy and ability to analyze and solve problems, coordination theory knowledge and improving students' practical ability. Previous teaching had "attention to theory, despise application", "attention to model, despise deduction" misunderstanding. At the same time college entrance examination curriculum makes diversified physical knowledge system for education groups. This paper explores a new effective teaching mode. First analysis of the University Physics Teaching, then discussed the diversified teaching mode based on the university physics teaching objectives.

Keywords: university physics; diversified teaching mode; Network teaching

1. Introduction

Under the impact of the wave of reform of higher education in 2005, professional physical basis of the non-physical class teaching guide the Sub-Committee propose the goal of a college physics course: Through the college physics course teaching students should have more systematic and correct understanding to the basic

concepts of physics, the basic theory and methods understanding. And lay a solid foundation for further learning. This requires physics teacher should pay attention to the students and analyze problems and problem-solving skills training, focus on students exploring spirit and innovative sense. However there are still some unsatisfactory in the goal of college physics teaching.

Firstly, the teaching content is still the knowledge-based, not a good application of the theory into practice. Secondly, it is difficult to adapt the students with poor theoretical basis to the university learning methods. And the last is the single teaching evaluation system. All of these show that it is difficult to achieve the desired teaching effect.

2. The exploration of the diversified teaching mode on university physics

In the "diversified teaching mode" the students are not the passive recipients only, and they should give full play to the enthusiasm and initiative of learning in various stages of development. Just like other teaching mode, diversified teaching involves teaching objectives, teaching content, teaching methods, teaching assessment, teaching management etc. The university physics diversified system was shown in Figure 1.

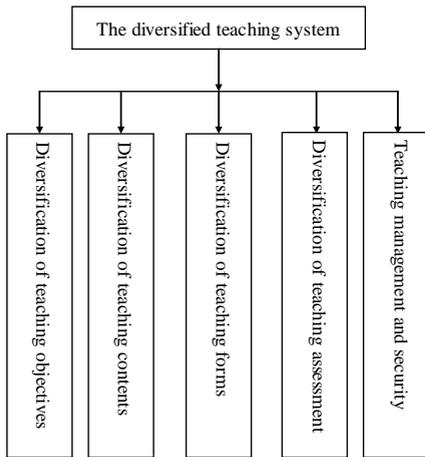


Fig. 1 The diversified teaching system on university physics

2.1. The diversification of teaching objectives

Society puts up diversified characteristics in the university, one is the training of investigative talent, and the other is of applied talents. University physics teaching tasks also need to diversify, and it is necessary to focus on the common goal of professional training, but also pay attention to the various teaching object on the bias; necessary to comply with the requirements of the quality of talent in the era of knowledge economy, but also to meet the needs of social pluralism; necessary to strengthen students' comprehensive skills, but also not to ignore the development of students' ethics.

2.2. The diversification of teaching content

The diversification of major and subject which in school, social requirement and individual student, all ask for teaching content of college physics to be diversified. The teaching content needs to be systematically constructed based on the fundamental principle of course design, emphasizing on the student's interest about their major and their general professional skills.

2.3. The diversification of teaching forms

The teaching methods regards diversified teaching as the basic approach to improve the capabilities of students through all the process of teaching programs by adopting the teaching principle, "Concentrating on each student; enlightenment, interaction, discussion and participation".

The methods include:

- Heuristic teaching;
- Case -based teaching;
- Combine the course teaching with the network teaching;
- Integration of diversified educational resources.

According to the traditional education technology and multimedia education technology characteristics and differences, educational technology will be optimized and integrated as follow.

I . Focus on Teachers' basic teaching skills training

II. Carefully design multimedia courseware for improving teaching effect

III. Take the student as the main body, and give full play to the leading role of teachers

IV. Multimedia courseware should lay emphasis on the communication between teachers and students in classroom teaching.

2.4. The diversification of teaching assessment

The appraisal is an important means of evaluating teaching effectiveness and talent quality. Single closed book examination has been unable to meet the needs of the diversified teaching mode. Thus, through reform assessment methods to complete the conversion from the examination-oriented education to quality education step-by-step, our university physics assessment is divided into two aspects: one is that students' classroom performances and homework should be the

main assessment indicators of regular grade, 30% of the total score; the other 70% is from theoretical examination which are also diversified. More precisely, test questions will be included required and optional ones that can be chose by students according to their major and interest. The diversification not only break the traditional mode of examination to liberate students' thought, but also truly evaluate their comprehensive ability comprehensively to make them willing to study. The establishment of diversified assessment methods is necessary to quality education and development of higher education. Further, it plays a significant role in cultivating high-quality talent who has the spirit of innovation, building scientific curriculum assessment and improving the quality of teaching.

2.5. Teaching management and security

One of the main purposes of teaching management is to ensure the quality of teaching. Teaching links like special teaching plan, teaching cases, demonstrated experiments, innovative designs, and etc. were set up, according to the training objective; to perfect teaching management supervision mechanism, and constantly improve the quality of teaching step by step. It could also comprehensively assess and evaluate the teaching aim, teaching content, teaching operation, teaching achievements, and teachers teaching art and quality regularly, as well as give feedback on some teaching problems in time. Diversified collage physics teaching mode system framework contains many elements, include teaching goal, content, form, assessment, management and security. The teaching goal is the guide, and the teaching contents are the core. The teaching form is the key, and the teaching assessment is feedback. Of course, the teaching management and

security is the supporter. The frame diagram of the university physics diversified system was shown in Figure 2.

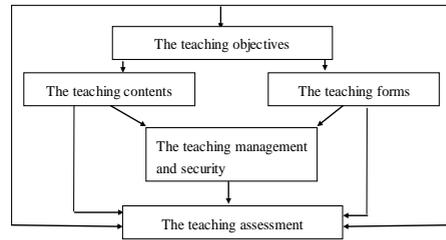


Fig. 2 The frame diagram of the university physics diversified system

3. Conclusion

In summary, the diversified teaching mode use of a variety of teaching methods .it was accepted by the majority of students, and achieved good results. As Soviet educators said: Teaching method optimization program is one of the most important and the most difficult problems are reasonable to choose a variety of teaching methods to achieve this combination. That is the best teaching results by a limited period of time in the conditions. Of course, diversified teaching model covers teaching methods there are many, but also we need to continue to rethink on the future of the teaching process and research, the use of more methods to achieve better teaching results.

4. Acknowledgements

This work is supported by the Fundamental Research Funds for the Central Universities.

5. References

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