Research on the Ways to Improve the Teaching Ability of College Physics Teachers

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Abstract: This paper systematically analyzes the current situation of the development of teaching staff's teaching ability. Through teaching practice, it expounds the effective ways of improving the knowledge structure, subject integration, professional characteristics and school-based culture, scientific research academics and teaching discussion and exchange.

1. Introduction

The fundamental characteristic of college teachers is that they possess profound professional knowledge. They are the subject of profound knowledge and the carrier of activities such as identification, acquisition, dissemination, diffusion and creation of profound knowledge. Nowadays, with the mission of higher education diversified, the teaching and academic development with educational competence as the core must be the primary goal of the professional development of college teachers, especially young teachers[1-4]. How to transform from an excellent learner to a professional and competent teacher in the shortest time is an urgent topic for the teachers of colleges and universities to think about and an important direction worth their efforts. In the teaching practice of college physics in recent years, I gained some experience on how to improve their teaching ability[5].

2. The Current Situation of the Development of Teachers' Teaching Ability

From the current development status of young physics teachers in our school, most of them have the problem of slow improvement of teaching ability, and the teaching level cannot keep up with the requirements of high-level personnel training, which is mainly reflected in the following aspects:

Firstly, the structure of academic margin is unreasonable, and there are very few "localized" teachers[6-7]. Most of the young teachers in our university graduated from ordinary local colleges and universities, lacking the knowledge required by the professional colleges and universities and related to the characteristics of the colleges and universities, lacking or one-sided understanding of the characteristics of the students, the educational environment, the educational concept, the cultivation of values and the formation of a complete educational chain, etc. The irrational structure of the academic structure and the imbalance of the knowledge structure of the instructors directly affect the teaching ability of the instructors.

Secondly, teachers' teaching practice time is relatively short, teaching experience accumulation and summary is not enough, teaching ability is relatively insufficient, teaching effect and teaching quality are uneven.

Thirdly, the scientific research level of most young teachers is relatively low, the vision of professional knowledge is not broad enough, the knowledge of interdisciplinary and interdisciplinary is lacking, and the ability of integrating theory with practice is not high. Therefore, the professional knowledge that teachers master cannot be effectively transformed into explicit knowledge that can be easily understood by the students, and the teaching ability improve slowly[8-10].

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3. Effective Ways to Improve Teaching Ability

As a compulsory basic course for undergraduate students, college physics lays the necessary physical foundation for the follow-up courses and the subsequent re-study, so that the students are trained in good physical thoughts and methods, and at the same time, it is of great importance and difficult to shirk the responsibility in fulfilling the goal of university personnel training. Teachers' teaching ability plays an important role in the training of students.

Firstly, perfect the knowledge structure to promote the improvement of teaching ability. The width and depth of the teacher's knowledge should be taken into consideration as far as possible. Give the students a drop of water, teachers should have a bucket of water first. A reasonable knowledge structure should include three components: professional knowledge, cultural knowledge and educational scientific knowledge. In terms of professional knowledge, teachers should have a systematic and thorough understanding of the professional knowledge, and refine the professional knowledge to promote the improvement of teaching ability.

Secondly, subject integration promotes the improvement of teaching ability. For effective discipline integration in normal teaching, in addition to complying with the teaching plan and meeting the learning needs of students, teachers can expand the relevant teaching content according to their own research content or the professional content of interest outside the field of teaching, which can be used as an assistant to students' learning, help them learn more knowledge outside the specialty, and improve teaching ability through practical inquiry.

Thirdly, professional characteristics and school-based culture promote the improvement of teaching ability. While researching the university physics professional knowledge, teacher should closely related to the specialty characteristics of the college, based on the school-based culture, mainly introduce the professional applied knowledge closely related to the physical content, and use the physics laws to analyze and solve practical application problems, so as to arouse students' enthusiasm for learning, deepen their understanding of physical knowledge, and realize the whole process of instilling professional related scientific and technological information. The interoperability and unity of basic physics knowledge in the application field can meet the requirements of diversification and comprehensive development of science and technology in the era of science and technology.

Fourthly, academic research promotes the improvement of teaching ability. As a teacher, in addition to accumulating and summing up teaching experience in the process of teaching practice, he also needs to constantly learn and supplement new professional knowledge, constantly track and pay attention to the latest contents of the frontier of theory and technology in the professional field, and integrate them into the teaching curriculum. In addition, teachers should strengthen the connection between theory and practice, constantly supplement the current effective cases, problems and development, so as to make the curriculum content consistent with the reality.

Lastly, teaching seminars and exchanges promotes the improvement of teaching ability. Extensive teaching seminars and exchanges, enriching indirect teaching experience and improving self-efficacy are also one of the ways to improve teaching ability. Young teachers should actively communicate with excellent teachers and supervisors, obtain relevant suggestions and guidance, attend demonstration classes in schools, learn excellent teachers' teaching methods, teaching strategies and abilities of control classroom, participate the basic teaching skills competitions of young teachers actively.

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