

## Study on the Reform of College Physics Teaching

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### Abstract

The thesis combines with the teaching practice the actual situation of social development in recent years according to how to pay attention to people's ideological and moral qualities of College Physics Teaching Reform in the cultivation of ability, personality development, physical health and mental health education requirements to put forward some views on college physics teaching reform in order to provide the corresponding theoretical and practical basis for the reform of university physics teaching.

**Key words:** Higher school; College physics; Teaching reform

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### INTRODUCTION

In a one-hundred year strategy of a nation, education is the most important base. Education is the eternal theme of the twenty-first Century, era of knowledge economy, in people's living and development. The purpose of higher education is to cultivate professional talents in different fields for the society, so as to serve the society with practical value. But with the development of society, our education is also in progress. As we advocate quality education today, only the professional knowledge and ability of training students are obviously not the college education all about. Teacher, is the person who teaches students knowledge, tells students the way to live and

answer students' questions. This is the way of being a teacher from the ancient times. Based on this purpose, for the university education today, one-way for the knowledge type of the proportion is relatively large. The quality of education refers to a kind of education which is the education mode to improve the quality of educatees' different aspects. It attaches great importance to the ideological and moral quality, ability, personality development, physical health and mental health education.

Physics is the core of natural science, and the basic principle of physics has penetrated into every corner of the natural science. The high technology around us is closely related to the theory of Physics (Li, 2013). The current system of University Physics Teaching is based on the basic physics knowledge learning. Teachers organize their teaching according to the physical concept and laws of logic relationship between organization teaching. Physics teaching plays an irreplaceable role in improving the comprehensive quality of college students (Zhang, 2016). If we want to reform the essence, it is necessary to explore things. In the premise of not being contrary to the objective law, breaking the original experience, there may be the birth of quality of creativity and innovation achievements. Exploring the nature of things can not escape the three source questions, namely "what" and "why" and "how". In other words, the three source problems in college physics teacher's point of view, can be expressed as "what is physics", "why teach physics" and "how to teach physics. This paper mainly focuses on the problem of how to teach" physics".

### 1. IMPROVE THE PROPORTION OF HOMEWORK IN TEACHING

First of all, physics is a natural science based on experiments and it is highly precise scientific quantitative and has methodological quality recognized as the most important scientific basis. At the same time, it is also

an important course, one of the compulsory courses for colleges and universities of science and Engineering Physics. Education in Colleges and universities usually guide students themselves learning, inquiry based teaching methods, the obvious difference in the early period of the “high school class intensive bombing, after-school exercises” teaching mode, which is virtually reduced the proportion of work. In the credit system of higher education, the operation of the weight is just a number, but this number is not the true measure of the importance of the work. Teachers should try their best to make every student understand the content of the classroom, so as to help college physics learning. (Zhang, 2017). Students can truly understand their knowledge of master’s degree Most of the time, the students in the classroom just looked at the blackboard in the derivation formula and passively received the knowledge at the same time to maximize the degree of understanding of knowledge in a short time. Because the learning quality of students is different, which cannot guarantee that every student can digest the classroom content. Ebbinghaus curve also determines that the students who understand the content in class are likely to forget under the condition of not strengthening the memory. At the moment, it reflects the importance of the homework. For most of the students they think understanding the basic formula means mastering the knowledge in the classroom, but the only real hands-on problem solving is the only way to verify whether they understand it or not. Higher education is different from middle school education which is to cultivate professional education. In order to cultivate the professional physical talents, it is not wise to use the sea tactics, which requires that the teachers should consider the importance of the content and the practicability and the scientific research value in the course of the work.

When students are doing homework, the discussion is absolutely allowed and let students understand not work independently, because most of the time the physical research results do not depend on the independent completion of the study. There are still many unknown phenomena we need to work together to explore our homework. The purpose is not to beat students. It is also not simply to distribute tasks, but to help students to understand knowledge. Cooperation is conducive to stimulate students’ inspiration, to strengthen the students’ initiative to solve the problem of consciousness, is conducive to enhancing the students’ thinking ability. The purpose of homework is not done in a certain way to solve problems, but to fully understand the students in the process of problem solving those involves in the discussions.

## **2. EFFECTIVE COMBINATION OF METHODS IN MODERN EDUCATION**

By teaching the basic theory and basic methods of college physics curriculum, we can cultivate students’ logical

thinking ability, improve scientific literacy, and establish a scientific world outlook (He & Zhang, 2013). In physics, a lot of physical concepts, the laws of physics are quite obscure, rather abstract, which are unable to fully understand. These concepts and rules have no contact with the related knowledge of students by teachers and their own imagination. In this case, the use of teaching video and multimedia courseware can make the classroom effective. Compared with single language teaching methods, teaching video and multimedia courseware is able to attract more attention of students, stimulate students’ interest in learning physics. The teaching video is intuitive and figurative images; animation can let students understand some physical phenomena in daily life. The physical phenomena in the multimedia courseware, text, image, sound and combination the use of color can effectively optimize the teaching process. The teacher writes on the blackboard in saving at the same time, which not only can effectively increase the class information transmission, but also form and enhance the effective communication between teachers and students. At the same time, a variety of ways to stimulate students to strengthen of knowledge and memory, and flexible use of animation files can more vividly reproduce the physical process. This text, sound shape teaching method combined with traditional relative in terms of teaching methods, obviously can meet the psychological needs of adolescents, grasp the students interest in physics teaching, which is half success.

Although the teaching video, multimedia courseware and other modern means of education provide a great help for the physical education, the physical classroom teaching still should pay attention to the reasonable use of these means, not too much to rely on the teaching video, multimedia courseware teaching. The theory education method has more advantages than disadvantages, but combined with the actual situation, most of the students are accustomed to the traditional one-way education. If college physics classroom education all depend on the multimedia education, the majority of the students are difficult to accept and show their inadaptability. From this point of view, although the teaching video, multimedia teaching can improve the efficiency and effect, the improvement degree is limited, and only in the rational use of these means circumstances can it upgrade. And college physics curriculum is different. Some chapters are simply easy to understand and do not need to use these modern education means to teach.

## **3. PAY ATTENTION TO “ACIT KNOWLEDGE”**

At the end of 1950s, Poland, on the book “Human Studies”, the “Tacit” concept was first proposed. This is not a clear reflection and presentation of knowledge, and opposite to explicit knowledge. Tacit knowledge

is from daily life through a variety of non classroom education experience and it is our access to the classroom. These explicit knowledge base on tacit knowledge subconsciously. It obtains explicit knowledge to us and is subtle. Although we are not aware of it, it does exist and virtually dominates the acquisition of knowledge and affects the result of obtaining explicit knowledge. Because people are not aware of the existence of tacit knowledge, it is difficult for us to pay more attention to its role, and rarely improve teaching methods according to its characteristics.

It advocates the importance of tacit knowledge, on the one hand is for students, which requires students to pay attention to the accumulation of time outside the classroom, pay attention to observation and experience, in order to obtain more potential knowledge. On the other hand is for the teachers. Teachers' tacit knowledge quantity is said to accumulate more than the amount of students' tacit knowledge. This is likely to lead to the teachers in the teaching process bringing the knowledge easily, which is difficult for students to understand. It is difficult to avoid, because we know that tacit knowledge is the knowledge, which is not aware of us sometimes. And then the knowledge that a teacher has mastered unconsciously, is likely to be classified as simple knowledge, and therefore it will not be taken into account to answer in detail. This situation requires teachers to be patient, pay attention to listen to students' questions and use their own tacit knowledge to assist in it. Answering the questions of the students can help students to add new experience, but also to enrich the students' tacit knowledge. Most of the time, the tacit knowledge of the students needs to be further improved.

In real life, the quality people equipment is different. Students with a lot of tacit knowledge from life to the classroom to accept explicit knowledge, many times have a certain element inside. Most of the time, to accept students tacit knowledge explicit knowledge is the need to further improve. But it is the tacit knowledge which is not fully complete on students' learning plays a guiding role to the students as and has subjective initiative. Tacit knowledge is not perfect and solid enough to understand the explicit knowledge, which is likely to lead to deviation in the understanding. Each student has their own unique growth experience.

Misunderstanding of explicit knowledge is from their own experience or is blindly into it from their own experience. Many students of explicit knowledge from their own experience or misunderstanding are often blindly into their own experience. This situation requires teachers to pay attention to the student's mistakes, especially obvious due to errors caused by improper understanding. This situation requires teachers to pay attention to the student's mistakes, especially due to improper understanding errors. Proper listening can help teachers and students in the correction of erroneous

ideas, enrich their teaching experience, can also enrich the teachers' personal life experience, help teachers from reflection, effective implementation of good experience. Teaching benefits teachers as well as students. Good experience often comes from social practice.

Teachers with hands-on experience in teaching practice for the actual situation in the book are often higher than the existing experience theory which is more close to the students. Analyzing specific issues, and specific analysis of specific solutions in this way are more likely to have good effects of feedback in the process of practice. Teachers with hands-on experience in teaching practice the actual situation in the book are often higher than the existing experience theory, which is more close to the students.

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## CONCLUSION

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Quantum mechanics can predict the possibility. Sometimes it is close to the correct prediction, but sometimes is not necessarily the case. We can usually be informed of the possibilities. This shows that only determining the history of the universe is not only the basic law, and there are uncertainties and contingencies. In fact, we have a lot of information in physics from these uncertainties. Therefore, in the process of teaching physics, teachers are often not able to use the basic laws of physics on the whole in the coffin. For the disciplines of physics exploration, the knowledge we have acquired is just a drop in the bucket than we face the unknown world. We should meet the new changes constantly with the new practice to deal within the process of education, so that we explore the unknown world in the way we look forward to continue moving forward, constantly close to the truth of the universe.

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