

Research on the teaching reform of “student centered” to improve students’ comprehensive ability in the era of “Internet +”

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Abstract. In the era of "Internet plus", the teaching reform research focusing on students and improving students' comprehensive ability has become the focus of research at home and abroad. Through the practical research on the teaching reform of basic courses, this paper preliminarily explores how to carry out the teaching reform centering on students in the ear of “Internet +” in order to improve the comprehensive ability of students.

1. Introduction

The "+" in the era of "Internet +" embodies a kind of crossover and integration, in other words, change and openness. At present, the Internet has been integrated into our life and become inseparable. Then, in teaching, can we make full use of network resources and combine the "Internet + teaching" model with "student-centered" model, so as to improve students' comprehensive ability and carry out teaching reform practice?

2. Problems for college freshmen

Freshmen just released from the pressure of studying in high school. The college entrance examination was successful and they entered the university. They believed that they could breathe a sigh of relief, and the university can have a good fun first, so slack off study, do not think progress. However, the new environment and opportunities in universities give them a strong thirst for knowledge and motivation for success. How to guide students in teaching, amplify their thirst for knowledge and guide their interest in learning becomes particularly important.

In the era of Internet +, although students start to get access to computers and the Internet early, the content they are exposed to is either the learning content specified by parents and teachers or the online games. How to find the relevant professional knowledge they need through the Internet is not enough. In college, the teaching form of knowledge is quite different from that of high school. Instead of one or two pages, a class will cover more than ten or even dozens of pages. How to grasp the key points and difficulties, how to digest and absorb them, and how to find the answers from the Internet for those who do not understand, these self-learning abilities become extremely important.

When Liang Qichao spoke at Tsinghua University, he said, what is the purpose of going to university? It's about learning to be human, or for the improvement of personal comprehensive ability.

3. Teaching reform practice

For freshmen just entering the university, we intend to use a year of teaching reform, the whole process is divided into two stages, in the first semester and the second semester. The teaching reform mainly adopts the combination mode of flipped classroom^[1] and PAD class (Presentation-Assimilation-Discussion)^[2]. Adhere to the student centered approach, fully mobilize students' enthusiasm for learning, make students fall in love with university, fall in love with self-learning, fall

in love with teamwork, and fall in love with Internet +. Through one year's training, students' academic level and comprehensive ability will be improved.

3.1 The first stage of teaching reform

The freshmen of grade 2018 carry out the first stage of teaching reform in the first semester. The mode of reform is "PAD + Flipped"^[3]. This stage of teaching reform trains students to use WORD for writing and typesetting, and to be able to produce PPT, familiar with the school's Blackboard curriculum teaching platform, proficient in the use of the Internet to find relevant information, strengthen teamwork.

The teaching reform practice flow is shown in Figure 1.

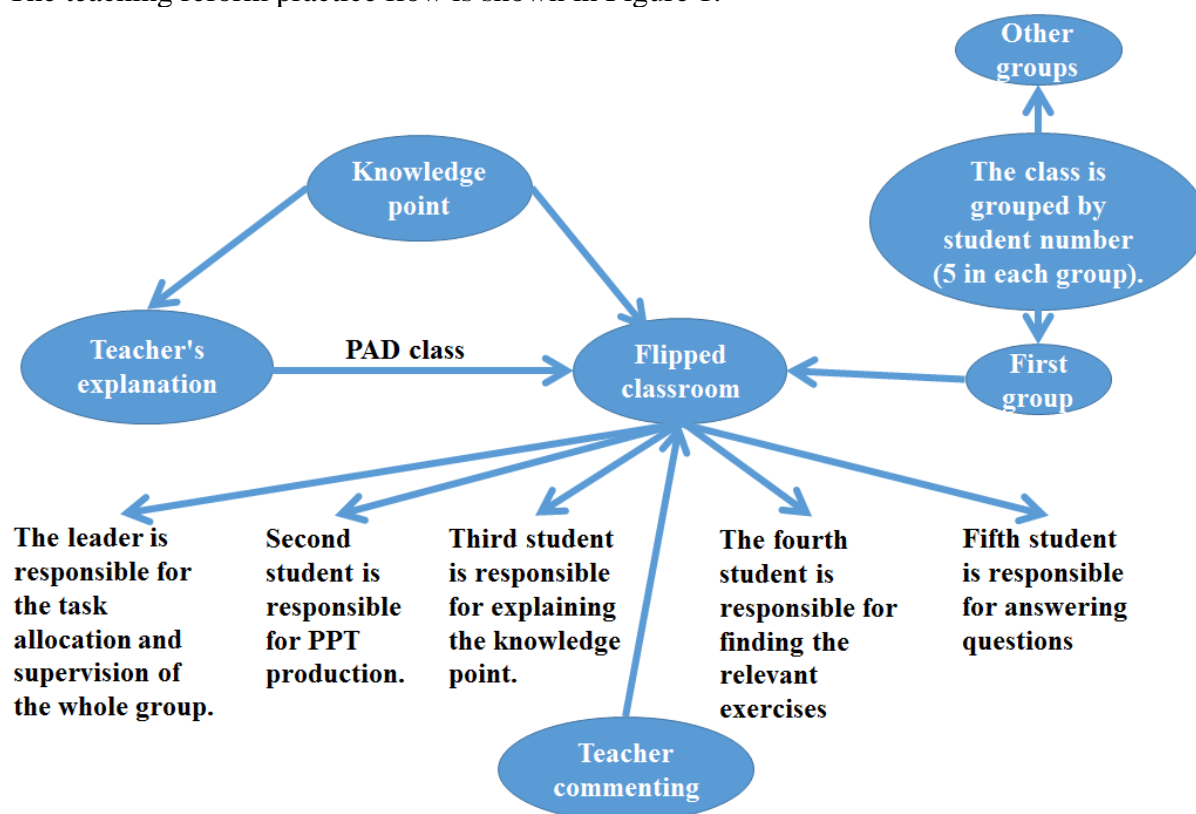


Fig. 1. The first semester teaching reform practice flow.

The students' abilities of explaining, making PPT and writing word documents, on-the-spot response, searching and sifting information through internet, organizing and coordinating, and uniting and cooperating have been improved. However, the participation of the five-member group in the classroom is not high enough, a lot of things are completed after class, individual students in the group did not do anything; PPT production is slightly rough; knowledge points and difficulties are not grasped enough; the personal reports submitted did not follow the unified template; teamwork needs to be strengthened; the ability to use Internet to find relevant information is insufficient. .

3.2 Second stage teaching reform

The practice of teaching reform in the second semester first improved the problems in the teaching reform in the last semester. Group no longer according to the student number, but the free combination, because of various problems did not group, can become a personal group, the teacher alone out learning tasks. In this way, individual students who did nothing last semester may fail to form a team, become an individual team, and must complete the personal tasks of the teacher. Secondly, because of the free combination, the group's cohesive force and centripetal force are strengthened. Finally, all five students in each group are required to participate in speech except those who make PPT. In this way, the class participation of each group is improved.

At the beginning of the first stage, the whole class of 56 people only had 3 people in touch with PPT production. In the second stage of teaching reform, students' ability to produce PPT has been

greatly improved, made continuous animation, and even video has been made, it can be seen that after class students have made great efforts. Personal reports have made great progress in writing and typesetting, most of which can be done according to templates. Students are more familiar with the BB platform and can better use the Internet to find information. The participation of students has been improved, most students have the opportunity to speak on stage, the ability to speak, pressure tolerance, on-the-spot adaptability has been improved, enthusiasm for learning has increased, and comprehensive ability in all aspects has improved significantly.

4. Improvement of comprehensive ability

Through the two stages of teaching reform, students' comprehensive ability has been greatly improved, and the cultivation of various abilities is shown in the following figure 2.

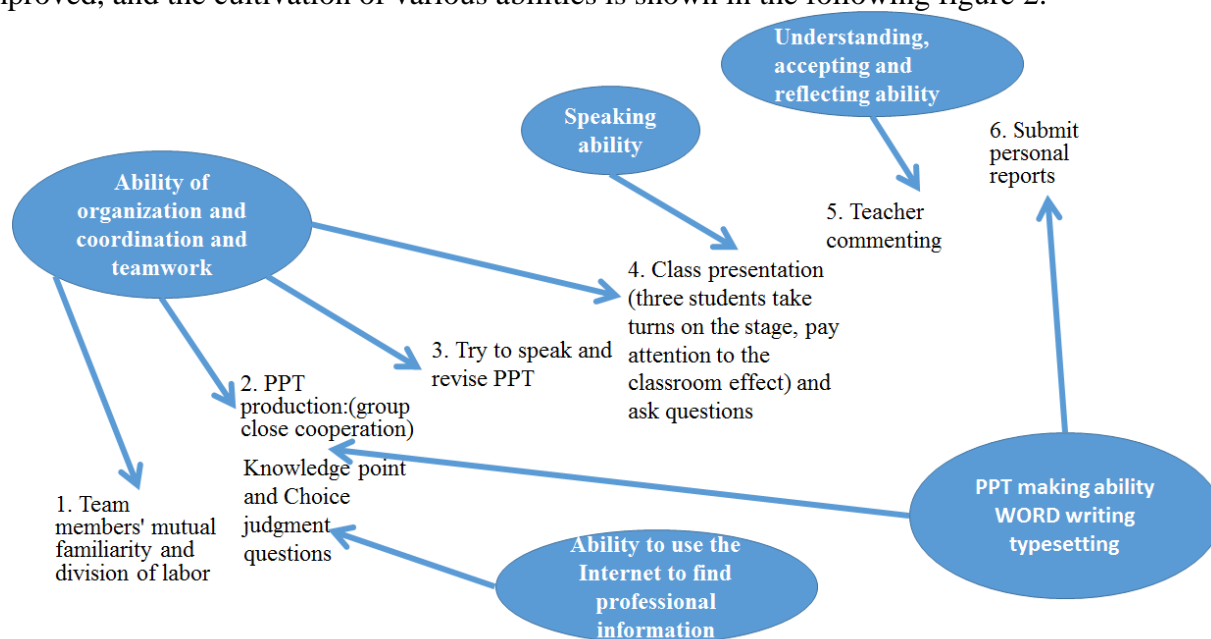


Fig. 2. Cultivation of comprehensive ability.

In the whole teaching reform practice, students are required to make full use of the Internet and learn all kinds of knowledge by themselves, including how to make PPT, how to solve problems in the process of WORD typesetting, knowledge related content and exercises. In the era of "Internet +", we can only use the Internet to serve ourselves, so that we can go to the forefront of the times and become a trend maker.

The whole teaching reform practice uses ARCS model to insist on student centered. Attract students' attention through teaching design; properly introduce project teaching^[4] to form a relationship with students' knowledge background, personal needs, life experience; enhance students' learning confidence through teacher comments, maintain the desire for success. And through the final group comparison, let the students feel satisfied and feel happy.

5. Summary

Through one year's teaching reform practice, it is found that this teaching model can stimulate students' learning enthusiasm and improve their self-learning ability, but it still needs to be improved in some aspects, such as how to better monitor and guide students' after-class learning^[5], how to divide their personal tasks more carefully.

Next, the teaching reform model will be further improved and applied to the teaching of professional courses, such as SCM technology, configuration control technology.

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References

- [1] E. Kamala, Students' centered gross anatomy teaching for 1st MBBS students using flipped classroom model, *Journal of the Anatomical Society of India*, pp. S138-S139, 2016.
- [2] Zhang Xuexin, PAD class: a new attempt in university teaching reform, *Fudan Education Forum*, vol.12(5), pp.5-10, 2014.
- [3] Ai LIU, Yun SHI, Qiuqing HAN and Chengzhang HAN, The Teaching Reform of Combination of Flipped Classroom and PAD Class in University, *Advances in Social Science, Education and Humanities Research*, vol. 85, pp. 936-940, 2016.
- [4] LIU Ai and WANG Ruixue, Discussion on the teaching reform of analog electronic technology, *J. Wuhan Univ. (Nat. Sci. Ed.)*, Vol.58, pp.177-180, 2012.
- [5] SUN Xiaowei, "Internet+" ear under the "rain class" in the course Teaching Reform Practice, *Journal of Shenyang Normal University (Natural Science Edition)*, vol. 36, pp. 92-96, 2018.