

The Building and Practicing of Teaching Mode "Students and Teacher Sharing One Stage"

Li Fenhua, Qian Chenhao

Renewable Energy College, North China Electric Power University, Beijing, China

Email address:

faithli@sina.com (Li Fenhua)

To cite this article:

Li Fenhua, Qian Chenhao. The Building and Practicing of Teaching Mode "Students and Teacher Sharing One Stage". *Humanities and Social Sciences*. Vol. 4, No. 1, 2016, pp. 1-4. doi: 10.11648/j.hss.20160401.11

Abstract: Based on the author's *hydraulic structure* course, this paper introduces how to build the teaching mode "students and teacher sharing one stage". Besides, this paper introduces the main contents, characteristics and effects of this teaching mode. What's more, the author explored some new reforms of teaching mode such as: the matrix of seats for students in the class, the communication among students, interaction between teacher and students, teacher's guidance. This paper is very significant in China teaching reform area.

Keywords: Teaching Mode, Matrix Class, Students and Teacher Sharing One Stage, Teaching Reform

1. Introduction

"Why our universities always can't cultivate outstanding students?" This is the famous question asked by Qian Xuesen. So from this question, we can see problems that need to be solved promptly in Chinese university education, and the urgency of deep reform in Chinese university education as well.

The Central Committee of the Communist Party of China has once released *The Decision to Deepen Education Reform and Promote Quality Education*. It clearly established to carry out heuristic and discussional teaching methods to stimulate students' independent thinking ability and innovation consciousness. In order to improving the teaching quality, teacher needs to help students to understand the emergence and development of the knowledge, cultivate their scientific spirit and innovative thinking habits, train their ability to collect, process information and acquire new knowledge, train their ability to analyze and solve problems. Besides, language expression ability, group cooperation ability and social activity ability of students are very significant and also need to be trained.

University teaching is a mission that need to be finished by both teacher teaching and students learning together. Teaching is teacher's main responsibility and learning is students' major task. The classroom is the stage of university teaching. Teacher, classroom and the students are the three elements that make up the teaching system. The ultimate goal

of teaching is to help students to grasp the core knowledge taught by teacher. In the traditional class teaching mode, the center of teaching is teacher, the center of teaching content are textbooks, while the class is considered to be the center in the organizing of teaching process. Usually the main teaching method is students only accept what the teacher teaches and answer what the teacher asks. The teacher teaches the same course year after year while different students listen it over and over again. The rigid teaching mode has restricted the development of Chinese university education and inhibited the youngsters' learning enthusiasm and creativity. Students become more and more dull. How to make the class active and interesting? How to improve the enthusiasm of college students? How to promote the learning efficiency? How to reform the tradition teaching mode? Based on the problems above which existing in the education, we begin the research of teaching mode "students and teacher sharing one stage".

2. The Creation of the Teaching Mode "Students and Teacher Sharing One Stage"

2.1. Matrix Class

The teaching mode "students and teacher sharing one stage" begins from the first class of the *hydraulic structures*. Students are divided into several groups, each group has five or six members. It needs to consider every student's

academic performance, personality characteristics, ratio of males and females of each group. Each group is a diversified study group. In the group, there are students with good grades, students who are lively. Besides, it also has students with poor performance. The intention of this kind of match is to make good students help the students who have less enthusiasm in learning and to let articulate students influence the tongue-tied ones. What's more, the division of the groups also considers the combination of males and females. In that females can be more careful in calculation and males can be more innovative while designing and manufacturing *hydraulic structures* models. The individual difference of group members can improve the advantages of the whole group. Learning from each other and making progress together.

In the class of *hydraulic structures*, everyone sits together with their own group members. Two or three students sit in the front and others sit at the back. The seats are not fixed but they must sit together. So as to facilitate discussion at any time during the class. Therefore, the entire class looks like a matrix and students call it "matrix class" as is showed in Figure 1.

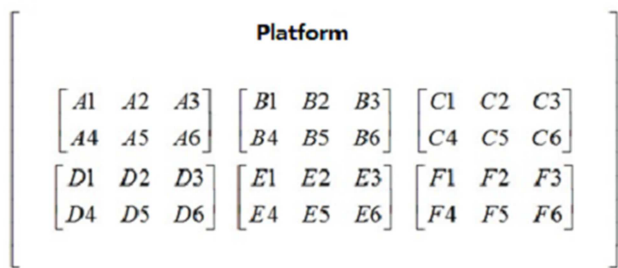


Figure 1. Matrix Class.

In Figure 1 A, B, C, D, E, F represent different groups, A1, A2, A3, A4, A5, A6 represent different students in group A and so on. The seats of group A, B, C, D, E, and F are not fixed and can be changed alone with the class. But everyone must sit with his group members. Therefore the class is formed by the unit of several groups.

2.2. The Interaction Among Students and the Interaction Between Teacher and Students

The interaction among group members, interaction and communication among different groups, interaction between teacher and groups, communication between teacher and students are the characteristics of the teaching mode "students and teacher sharing one stage". Students are the center of this teaching mode. Teacher designs knowledge points in teaching content. In the process of teaching, teacher mainly explains the difficulties and the train of thought. The purpose is to guide students, inspire them to think about problems and to learn new knowledge. Students discuss and debate around the questions raised by teacher, so that everyone can participate in it. Therefore it is easier for students to grasp the difficulties and key points in a fierce debate.

In the teaching mode "students and teacher sharing one stage", students become active and enthusiasm in class. The students who are passive in class now become the center of the class. Discussion and debate motivate students' enthusiasm to study. What's more, the communication among group members form a brain storm in regular range. It makes study not monotonous anymore.

The teaching mode "students and teacher sharing one stage" was first tested in the *hydraulic structures* class in 2009. This teaching mode had aroused the enthusiasm of the students and promoted students' study ability. This method was then carried out in the *engineering measure class with inspiration, discussion and participative teaching*. Many students felt this teaching method promoted learning efficiency and learning interaction.

3. The Design of the Teaching Mode "Students and Teacher Sharing One Stage"

3.1. Elaborated Design of Class

The key point of the teaching mode "students and teacher sharing one stage" is the design of class. In the traditional teaching mode, teacher prepares the class content and gives students a class regulated in the teaching outline within 50 minutes with the help of multimedia courseware. How to design a class to meet the teaching requirements in the form of "students and teacher sharing one stage"? This has put forward higher requests to the teacher in class to finish the same teaching task but in a totally different way.

I need to do a lot of preparations before every class and the teaching tasks of each class are designed elaborately. The main content includes important knowledge points and key points which students need to discuss and debate for a few minutes. In this process students can find the way to solve the problems as well as getting some inspirations to solve some practical engineering issues. They can use some knowledge in the subjects they have taken. After a heated discussion, I will teach them the methods and ideas to solve the problems and difficulties.

3.2. The Design of the Teaching Mode "Students and Teacher Sharing One Stage"

After a fierce discussion, some groups have ideas, some groups have methods while some groups have no thoughts. No matter what the consequences are, everyone has understood the knowledge points and the difficulties of this lesson. The curiosity motivates the students to find out the right way to solve the problems. They want to know whether their ideas are right. As a result, everyone will concentrate on me and listen to me carefully. They want to grasp every word I say, every picture I draw and every formula I write. Their minds are spinning rapidly and I can feel the strong thirst for knowledge from their eyes. If they can understand and acquire what I have told them, I will give them 5 minutes to

debate. As you think, they discuss fiercely and this process helps them to grasp the way to solve the problems. Then they will calculate the stress and find out the final answer. About 8 minutes before the class finished, I will ask students to explain the knowledge points, key points and ideas to solve the problems on the platform. Other students can challenge, supplement or express different views. The whole classroom turns into a stage of students and I just like a student sit down and listen to them carefully. At the end of the class, I would make a short comment on their performance on the platform for about 3 minutes.

3.3. The Summary of the Teaching Mode "Students and Teacher Sharing One Stage"

After a class, I will make a summary about the students' learning status. The content mainly includes: the distribution of time for students to discuss in the class, the effect of students' performance on the platform and the opportunity for teacher to point out the problems. I also use questionnaires to investigate students' opinions and get some useful suggestions about this teaching mode so that I can adjust my teaching method timely and achieve a better teaching effect. In order to get students' learning status more accurately, at the beginning of next class I will give them a little test about the key points and difficulties of last time. Students need to recollect the content of last class and write down on the paper within 5 minutes. In this way students can consolidate what they have learned and make a perfect connection between two lessons.

4. The Characteristics of the Teaching Mode "Students and Teacher Sharing One Stage"

The teaching mode "Students and teacher sharing one stage" is an innovative teaching mode constituted by groups discussion, teacher guidance, students' explanations on the platform, teacher's comments and pop quiz in the class.

4.1. Group Discussion

Group discussion provides a platform for students to communicate with each other. This platform fully reflects the students' learning initiatives. In the process of discussion, everyone makes his goal clear. When students try to find out the solutions of the problems, their deep desire for knowledge and exploration is stimulated. Students learn how to express different views and opinions, how to accept the same views and different perspectives, how to debate and how to prove their ideas' correctness through communication and discussion. Through group discussion, college students are able to obtain a process of autonomous learning, provide their own knowledge to each other and solving the problems with joint effort at last. The group discussion needs everyone to participate in study positively and actively. Students' whole quality is promoted. This kind of group discussion not only cultivates students' courage to explore and study, but

also gives each student a chance to fully display his own personality and talent. Every group member learns from others' strength to offset his own weaknesses and become united. Finally, students achieve the purpose of learning and win-win.

4.2. Teacher's Guidance

Every teacher is the chief designer of each university class, because teacher needs to give students the topic of discussion and limit the discussion in a certain period of time. Normally 5 minutes. When time is up, the discussion needs to stop immediately. Every student needs to come back and listen to the teacher's explanation. Base on the process of students' discussion, the teacher leads students to think toward the right direction to solve the problems and also reminds them the useful basic professional knowledge points in *Mechanics of Materials*, *Structural mechanics*, *Coil mechanics*, *Hydraulics* and so on. Teacher continue inspires students to think and discuss. The conclusions of each group's discussion are different, some groups may have the solutions and everyone in it has grasped the solving ideas. The members of this group usually feel very exciting. In some groups, maybe just a few students understand the solutions, when they explain the ideas to other group members, others all listen carefully. And then the teacher explains the correct way to solve the problems on the blackboard. All the students concentrate on the teacher. This is the best time for the teacher to teach and students absorb the knowledge with an impressive effect. They grasp the knowledge points and difficulties during the class.

4.3. Students Explain on the Platform and Teacher Comments

In order to improve the quality of group discussion, Teacher usually asks several students to explain the conclusions of their group. For students, standing on the platform and explaining the teaching content are full of curiosity and passion. This new way of teaching encourages students to concentrate on the problems and try their best to solve them in a short time. They are willing to display themselves and express their opinions and solutions. Then teacher will remark on the solutions and point out which idea is distinctive, which idea is arduous or even wrong, which idea is not comprehensive. Students who explained on the platform just now obtain both affirmation and inspiration. Everyone become more and more brave and even when their conclusions of discussion are wrong but they can find the correct solutions at last. Especially the students who explain on the platform, they can grasp the content deeply.

4.4. Pop Quiz During the Class

Pop quiz during the class is also a feature of the teaching mode "students and teacher sharing one stage". The quiz is usually arranged in 5 minutes at the beginning of the class. The content of the quiz is mainly on knowledge points and difficulties about last lesson. The purpose of it is to

understand the students' mastery degree of last course. This kind of quiz gradually leads students to get used to reviewing knowledge that have learned in professional courses. At the same time, the quiz can provide information support for the final examination. Previously, I usually spent 5 minutes leading students to review the knowledge of last class at the beginning of the class. However, using quiz to replace the summary, students' learning effect is better. Learning has completely became the students' own mission.

5. The Practical Performance of the Teaching Mode "Students and Teacher Sharing One Stage"

It is the highest level of learning, if the learning process is filled with pleasure. The ultimate purpose of the teaching mode "students and teacher sharing one stage" is to cultivate elite students with innovation ability. This kind of cultivation covers every each of the students, so that everyone of them is inspired and motivated during the process of learning. Therefore, it can further helps the young people to form their own creative thinking patterns.

In the teaching mode "students and teachers sharing one stage", students need to sit and discuss in groups. It requires the students to have clear understanding of the professional knowledge points. During the discussion, students are relaxed and focused, so that every student can highly participate in the group discussions. This education model is able to achieve the purpose of improving the overall quality of every student. Besides, although the debates among students are sometimes fierce, the relationship between them is closer and the questions are getting clearer and clearer. Through discussion, students can learn how to deal with different opinions from others.

It has proved in practice that this teaching model has improved the effectiveness of class teaching, stimulated students' interests in learning and helped them to build up a platform for students to study and discuss in class. It empowers the students to develop their creativity, and fully explores their potential.

6. The Conclusions of the Teaching Mode "Students and Teacher Sharing One Stage"

Through the teaching mode "students and teacher sharing one stage" students not only grasp the essential knowledge of the class, but also arise their enthusiasm for learning. Meanwhile, teacher also improves teaching quality in this model. Finally, We come to following conclusions:

1. Students' learning motivation and learning efficiency

are promoted through this teaching mode.

2. Students' consciousness of teamwork is enhanced by this teaching mode.
3. With the help of discussion and interaction between students and teacher, students can grasp difficult knowledge points in a short time.
4. According to student's mastery degree of the knowledge, teacher can pace his teaching to make the teaching more efficient.
5. This teaching mode makes the thinking of students and teacher more active and the exploration of professional knowledge become deeper.
6. This teaching model upgrades the teaching quality effectively.

References

- [1] Zhang Bin, "Research on hydraulic structure course teaching." China Science and Technology Information 2009
- [2] Cao Qiulin, "Research on Hydraulic structure course teaching model." Textbook Reform 2013
- [3] Li Qian, "Research on Grouping teaching mode." Education Reform 2011
- [4] Wang Wenjing, "The teaching model reform practice in China—Learning oriented integrated classroom teaching mode." Journal of Beijing Normal University 2012
- [5] Ren Hongjie, "Thinking about the interactive teaching of colleges and universities." Theory of colleges and universities online 2007
- [6] Li Zhihou, "The status and development trend of Foreign teaching design research." Study In Foreign Country 1998
- [7] Shi Guang Zhang Shaoxue Luo Xiaoqin, "The teaching model reform and the exploration of interactive teaching mode." Journal of southwest university for nationalities 2003
- [8] Jskub Soviar, Michal Varmus, Milan Kubina, "Modern Approach to Teaching as University — Students Love the Real Problem." Science Director 2014
- [9] Adriana Almeida Sales de Melo, "Prospects for the future of education. Training teachers to think beyond." 2015
- [10] Sari Lindblom-Ylanne, Toomas Kotkas, Heikki Pihlajamaki, "What Makes a Student Group Successful? Student-Student and Student-Teacher Interaction in a Problem-Based Learning Environment." 2003
- [11] Li Mang, Zheng Chunping, Tang Xiaolan, Sang Guoyuan, "Exploring the nature of teacher-student interaction in small-group discussions in a Chinese university setting" 2015
- [12] Reinald A. C Bianchi Carlos H. C. Ribeiro. Anna H. R. Costa "Accelerating autonomous learning by using heuristic selection of actions" 2007