

Analysis of the Improvement and Practical Effectiveness of the PAD Class Teaching Model

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Abstract—Presentation-Assimilation-Discussion (hereinafter referred to as ‘PAD’) class, as a novelty classroom teaching model, centers on a basic philosophy that teachers’ lecturing and students’ discussion is expected to have a 50-50 split of class time, and students’ self-study and assimilation should be incorporated into presentation and discussion. PAD class can be divided into four teaching sessions: presentation, self-study, peer-to-peer discussion, and teacher-student dialogue. However, in practice, problems arose, especially in peer-to-peer discussion sessions, where students trivialize this new model, as they do not want to discuss, or simply do not know how to discuss, resulting in low-quality discussions. Taking enterprise strategy management courses in practice as an example, this paper put forward corresponding improvement measures. Moreover, the effectiveness of the PAD class model and the improved teaching model was analyzed based on questionnaire statistics. Practices have proven that the PAD class teaching model can make classroom teaching more active. Furthermore, on the basis of the regular PAD class model, raising students’ awareness of the importance of discussion, optimizing grouping methods, establishing a rotating chairman system, and setting suitable discussion topics can all significantly change students’ attitudes for the better and move closer to the teaching goals.

Keywords—PAD class, discussion, improvement measures, practical effectiveness

I. THE TEACHING MODEL OF PAD CLASS

A. The Core Concept of PAD Class

The PAD class teaching model was coined by Professor Zhang Xuexin of Fudan University in 2014 [1–3]. Zhang held that PAD class was likely to be an efficient classroom teaching model fit for China’s actual situations, and was hence worth experimenting with and promoting [4–7]. Through practice, this paper argues that PAD class is a new type of teaching model with Chinese characteristics that can effectively enhance students’ motivation to learn and better achieve teaching results [6, 8–13]. The core idea is to allocate about half of the classroom time to the teacher, and the other half to the students so that they can discuss with each other and learn interactively (Fig. 1). In addition, since the time for presentation and discussion is staggered, students have

after-class time for self-study and assimilating what they have learned in their personalized ways [14–19]. PAD class separates teaching into three processes in terms of time, namely presentation, assimilation, and discussion (PAD class for short). In specific operation, it can be divided into four teaching sessions: presentation, self-study, peer-to-peer discussion, and teacher-student dialogue (Fig. 2).

B. Operation Procedures and Key Points of PAD Class

Literally speaking, PAD class bisects class time, with the teacher’s presentation time being one half, and students’ discussion time being the other half. That aside, in practice, the ratio is not strictly half and half, but can be adjusted as appropriate [20–23]. Teachers should make flexible arrangements according to the nature of the course, the content of the course, the length of the presentation, and the characteristics of the students.

In terms of the form of the split, it is appropriate to ‘split in the same class’ or ‘split across classes’. The so-called split in the same class refers to that in the same class, the teacher immediately organizes the students to study on their own and participate in discussions after the presentation. The advantage of this method is that the students are more familiar with the knowledge points which have just been taught, and for students lacking self-discipline, this approach can serve as a prod. Comparatively, ‘split across classes’ turns immediate discussion in the ‘split in the same class’ form into a delayed discussion, so that students have more time for self-study and personalized absorption, and can hence form a more complete self-thought and self-understanding [24]. In this case, during the discussion session, students can have more extensive and in-depth discussions, which makes the ‘split across classes’ model an ideal format. Nonetheless, for restrictions such as teaching arrangements, teachers can choose freely according to the reality of the teacher, curriculum, and students.

In the teachers’ presentation session, teachers should carefully prepare and organize the content of the lecture, sort out the knowledge system, and guide students to grasp the framework and difficult knowledge points. In the process of assimilation, students should absorb knowledge into their personal experience based on teachers’ explanations and integrate it into their own knowledge system [23]. In the discussion session, the

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teacher should organize and guide the students to actively participate in the discussion, and encourage communication in the form of intra-group, inter-group, or whole-class reports.

Presentation, self-study, discussion, and dialogue are the four elements of PAD class. They are interlocking and progress step by step, enabling students to draw their knowledge map by grasping individual knowledge points one by one.

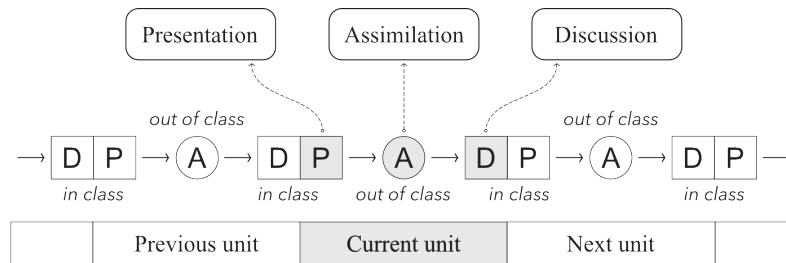


Figure 1. Basic process of 'split across classes'.

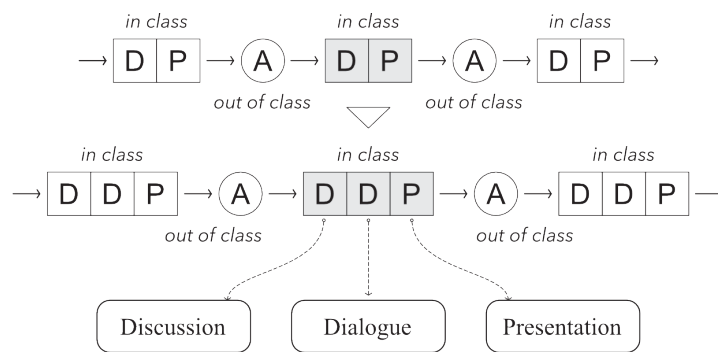


Figure 2. The actual operation process of the Presentation-Assimilation-Discussion class (PAD class).

II. COMMON PROBLEMS IN THE PAD TEACHING MODEL

Discussion, the third part of the PAD teaching model, serves as a connecting link between the preceding and the following. It directly affects the assimilation of teachers' teaching content, the effectiveness of self-study and the results of teacher-student dialogue. It also directly impacts the final teaching effect of the course and how the teaching goals are attained. Peer-to-peer discussion plays a decisive role in PAD class, but in current teaching practice, a series of problems have hindered its progression (Fig. 3).

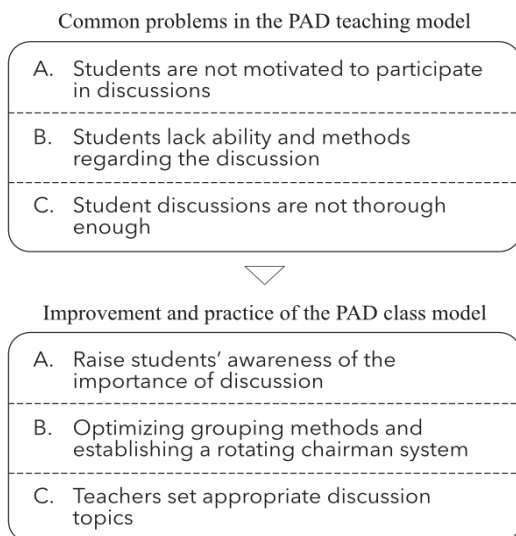


Figure 3. Common problems and improvements in the PAD teaching model.

A. Students Are not Motivated to Participate in Discussions

Among the sessions of PAD class, the discussion is often difficult for teachers to control. In a class, it is almost impossible for teachers to ensure that all students participate actively in discussions. Some students are not motivated to participate in discussions, and they sometimes show negative attitudes, deliberate ignorance, or remain slipshod. Some students with poor academic foundations feel frustrated when participating in discussions. They feel that they are outsiders to the discussions. They may even develop a sense of fear that their opinions will be ridiculed by their peers, and that their speeches are not in-depth enough and will not be approved of by their peers. Over time, they lost interest in participating in the discussion, and would like to read alone rather than engage in group discussion. Some students have introverted personalities and are nervous about speaking or expressing opinions in public. These students may participate in discussions, but rarely express opinions, only as listeners. Other students always have an indifferent attitude. Even when they join a group, they rarely respond or don't respond when their peers speak.

B. Students Lack Ability and Methods Regarding the Discussion

Some students don't know what to say during discussions, nor do they know how to discuss properly, or how to respond when their peers speak. This type of student is willing to participate in discussions but lacks certain discussion methods and strategies.

C. Student Discussions Are not Thorough Enough

During the discussion, some students only mechanically retell the views of the teacher or books. They have no choice but to finish the discussion reluctantly. These students have no subjectivity or enthusiasm for discussions, lack in-depth thinking about the topics discussed, and are unable to put forward their own ideas and valuable opinions. Some students have a narrow range of knowledge; they can only confine themselves to discussing matters instead of making inferences, and cannot see the essence of things. As a result, the discussions are only superficial rather than insightful.

III. IMPROVEMENT AND PRACTICE OF THE PAD CLASS MODEL

A. Improvement of the PAD Class Model Based on Enterprise Strategy Management Courses

The main reasons why the results of PAD class teaching sessions failed to meet expectations are the following 3 points. First, students don't pay enough attention to the discussion and have a weak sense of teamwork; Second, in the teacher's presentation link, students do not learn conscientiously, and in the self-study link, they are not fully prepared; Third, teachers' organization of discussion links is not detailed enough, and their guidance to students is not sufficient.

Based on the analysis of the above reasons, combined with the teaching practice of the enterprise strategy management course, this paper proposes the following three improvement measures to the PAD class model (Fig. 3).

1) Raise students' awareness of the importance of discussion

Explain the importance of classroom discussions to students by organizing expert and teacher lectures. Every peer-to-peer discussion is equivalent to attending a small academic seminar. In the discussion, students can exchange opinions, and spark ideas. Besides, teachers are on site, so they can comment on students' thoughts. The opportunity is rare and should be cherished and grasped. Teachers should guide students to recognize the importance of discussions and inspire students to pay heartfelt attention to discussion sessions, promoting them to actively organize and participate in discussions.

2) Optimizing grouping methods and establishing a rotating chairman system

Divide the class into several groups with 5-6 people as a group. Each group has a rotating chairman, who is responsible for presiding over the discussions. Grouping should be based on the principle of 'homogeneity between groups, heterogeneity within groups'. In other words, each group's learning and discussion level should be basically the same to avoid excessive differences between groups. Meanwhile, within each group, individual students should be differentiated, and the proportion and number of outstanding students, middle-level students, and students with a large room for improvement should be distributed rationally. The

general ratio can be chosen as 1:2:1. This distribution and structure are beneficial for students of different levels to learn from each other in discussions, learn from each other's strengths and weaknesses, and reach a higher level together. For group discussions to proceed smoothly, teachers can establish a rotating chairperson system. The students take turns as the chairperson, responsible for chairing the group discussion, maintaining the order of the discussion, recording the discussion process, and stimulating the enthusiasm of the discussion. The first lesson should ensure that students are all grouped. Each team has a team name, team slogan, and team goal, and forms team norms to shape team awareness and team identity.

3) Teachers set appropriate discussion topics

After each presentation, teachers should arrange and design the topic for the next discussion in advance. In this way, each group has topics for discussion, which can effectively avoid the problem of unfocused topics, thereby increasing the efficiency and depth of discussions. The number of topics to be discussed should be determined according to the time of discussion. Generally, it is not appropriate to have too many topics. One to three topics are ideal and the difficulty level of the topics to be discussed can change accordingly. For example, students can first discuss the key points and difficult issues of the teaching unit and then connect to life, and expand to hot social issues in reality.

B. Analysis of the Teaching Effectiveness of the PAD Class Model

1) Analysis object

Based on the 'Enterprise Strategy Management' course, 85 students from two second-year classes majoring in business enterprise management at the School of Management (Enterprise Management Class 1 and Enterprise Management Class 2 for short) and 42 students from one class majoring in finance (Finance Class 1 for short) were selected as research subjects. Among them, for the 'Enterprise Strategy Management' course, the PAD class model was not adopted in the students majoring in finance, but has been used in the students majoring in enterprise management for three years. In this teaching experiment, Enterprise Management Class 1 employed the conventional PAD class model, and Enterprise Management Class 2 used the improved PAD class teaching model. A: Finance Class 1; B: Enterprise Management Class 1; C: Enterprise Management Class 2.

2) Observational indicators and analysis of teaching reform

This teaching experiment set three observational indicators: classroom activity, teaching satisfaction, and achievement of teaching goals. Among them, classroom activity is the average ratio of the number of students participating in free speech and sharing in each classroom to the total number of students in the class; teaching satisfaction is based on the school's teaching satisfaction evaluation performance at the end of the semester; the achievement of teaching goals refers to the exam grades of students at the end of the term (Fig. 3).

Fig. 4(a) shows the statistics of classroom activity for three classes. The teaching method in the morning for this course in Finance Class 1 used the traditional method. The average classroom activity was 22.1%. In other words, only 4 out of 42 students participated in speaking and communicating in class. Enterprise Management Class 1 used the regular PAD class teaching method. As can be seen from statistics, the average classroom activity was 57.4%, which is much higher than the 22.1% of Finance Class 1. In other words, after adopting the PAD class teaching model, more than half of the students participated in communication and discussion. Enterprise Management Class 2 used an improved PAD classroom teaching model. According to survey data, the average classroom activity was 73.6%. In other words, under the improved teaching model, more than 30 out of 40 students actively participated in communication and discussion in each lesson. Statistics show that the PAD class teaching model can effectively increase students' participation in the classroom, and the improved teaching model can further increase classroom activity.

Fig. 4(b) shows how satisfied students are with the classroom. The lowest level is shown in Finance Class 1, which was 76.5, and the average class satisfaction of students in Enterprise Management Class 1 was 87.3, 14.12% higher than in Finance Class 1. Enterprise Management Class 2 students had the highest level of satisfaction, at 92.4, exceeding that of Financial Class 1 by 20.78%, and was 5.84% higher than Enterprise Management Class 1 which used the regular PAD class model.

Fig. 4(c) exhibits the achievement of the teaching goals of the three classes under the three teaching models (same final exam papers). Enterprise Management Class 2 shows the highest extent to which the teaching goals were achieved. The average score reached 81.4, while Finance Class 1, which used traditional teaching methods, had an average score of 72.3, and Business Management Class 1, which used the regular PAD class teaching model, had an average score of 76.9.

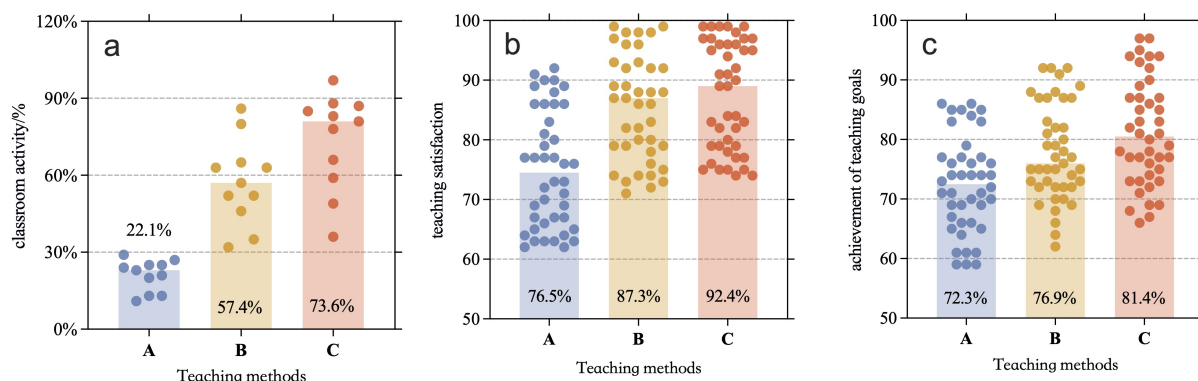


Figure 4. Classroom activity, teaching satisfaction, and achievement of teaching goals under different teaching modes: (a) classroom activity; (b) teaching satisfaction; (c) achievement of teaching goals.

IV. HOW TO IMPLEMENT PAD CLASS

The following things should be taken into consideration when implementing PAD classes in colleges and universities.

1. Teachers and students are both main actors of classroom teaching, and the former should pay attention to cultivating the latter's ability in self-directed learning. Instead of relying purely on bland lecturing, teachers should be more focused on the assimilation of such knowledge by students. In terms of classroom teaching, depth and breadth (i.e., quality and quantity) are two equally important key indicators.

2. In actual teaching, it is difficult to use classroom time strictly according to the principle of half and half split, so teachers should rationally adjust and flexibly arrange the use of time based on the needs of knowledge presentation, the characteristics of the classroom and the actual situation of students, so as to achieve the ultimate teaching objectives of PAD Class.

3. Teachers should pay attention to providing effective guidance to students during the assimilation stage. They can help students better understand and apply what they

have learned by assigning assignments of various forms (e.g., reflection questions, reading notes, etc.) and moderate difficulty.

4. Teachers should pay attention to choosing clear and explorable topics for students, and to guiding and mediating students' discussions according to progress and effectiveness thereof. In addition, teachers can divide students into groups according to their personalities and grades, etc., so as to ensure that the group members can cooperate well with each other and to create a good atmosphere for learning and discussion.

V. CONCLUSION

Since the introduction of PAD class in 2014, the research and practice of PAD class have grown by leaps and bounds, with theories being added and improved, and many practices appearing. The PAD class teaching model can make classroom teaching more active. In the early stages of the PAD class, the students all showed a high level of enthusiasm. However, as the number of applications increases, students' negative thoughts also arise, and so do slipshod behaviors. At this time, teachers

must flexibly change the teaching model and group discussion format according to the actual situation of the students. Practices have proved that based on the regular PAD class model, raising students' awareness of the importance of discussion, optimizing grouping methods, establishing a rotating chairman system, and setting suitable discussion topics can all significantly change students' attitudes for the better and move closer to the teaching goals.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

Jiali Jin and Sike Jin jointly implemented teaching reform. Jiali Jin wrote the paper. All authors had approved the final version.

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