



# The Influence of PBL on Students' Critical Thinking in Undergraduate English Teaching

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**Abstract.** Problem-based Learning (PBL) teaching approach is a problem-oriented teaching method. It emphasizes students' active learning, so as to cultivate students' autonomous learning ability and innovation ability. At the same time, it is also the cultivation of students' critical thinking. It requires rigorous standards of excellence and mindful command of their use. Since 2016, China has taken cultivating students' critical thinking as the core quality of Chinese students' development, and promoted the educational practice of critical thinking in China. To study the development of PBL teaching method in College Teaching in China, especially in English teaching. It is helpful to promote the reform of College English education in China and the cultivation of college students' critical thinking and innovative thinking. However, in the attempt of PBL teaching method in Chinese College English education, it is found that the design situation is not close to the actual situation. The purpose of this review is to summarize the relevant research on the cultivation of students' critical thinking in College English Teaching in China, so as to better study and develop the application of PBL teaching method in domestic higher education.

**Keywords:** PBL Teaching Method · Critical Thinking · Undergraduate English Teaching

## 1 Introduction

PBL is a student-centered education approach in the teaching of knowledge. Under the guidance of teachers, students independently collect data around problems, find and solve problems, and cultivate students' autonomous learning ability and innovation ability. Different from the traditional subject-based teaching method, PBL emphasizes students' active learning rather than teachers' teaching in traditional teaching [1].

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There are many existing studies on the application of PBL in English teaching in higher education. Zhou argues that the application of PBL in English teaching has great advantages in promoting students' language application, ability cultivation, and emotional efficacy. The new English teaching mode based on PBL has significantly improved the teaching effect and quality and promoted the role of college English courses in cultivating applied talents to a certain extent [2].

Paul and Elder explained critical thinking in their book *Critical Thinking* that "Critical thinking is, in short, self-directed, self-disciplined, self-monitored, and self-corrective thinking. It requires rigorous standards of excellence and mindful command of their use. It entails communication and problem-solving abilities and a command to overcoming our native egocentrism and sociocentrism." [3].

This paper regards critical thinking in English teaching as being able to construct the knowledge system and think critically from different angles, so as to promote students to cultivate innovative ability in autonomous learning. In September 2016, China's Ministry of Education released the core literacy of Chinese students' development, which takes "rational criticism, critical questioning and courage to explore" as the basic points of evaluating students' scientific spirit. After that, China has further promoted the relevant work of cultivating students' critical thinking. Then, China clearly put forward the conceptual framework, evaluation scheme, and teaching design standards of critical thinking, and vigorously promoted the educational practice of critical thinking.

However, few existing studies investigated the development of critical thinking. In these studies, the authors mainly study the effectiveness of the PBL model in promoting critical thinking in undergraduate English teaching and its application strategies. In terms of effectiveness, Li and Shi conducted a one-year comparative experiment in which the PBL teaching model was adopted in the experimental group and the traditional teaching mode as the control group. It proves that PBL teaching mode had a positive promoting effect on improving students' critical thinking abilities such as reasoning, analysis, and deduction. It states that the reason for the effectiveness of the PBL teaching mode lies in the fact that autonomy and cooperation enable PBL teaching to break through the isolated and passive learning in the traditional mode. At the same time, its problematic and situational nature can better highlight the cultivation of students' critical thinking ability [4]. In terms of application strategies, Zhan argues that cultivating students' critical thinking should be regarded as a long-term teaching goal. After that, it should be integrated into teaching content, teaching links, classroom activity design, and after-class exercises. It also expounds on how to apply PBL teaching mode in college English reading class from the following five aspects: setting up a situation, problem determination, autonomous learning, cooperative learning, and effect evaluation [5].

According to the existing literature, in recent years, Chinese scholars have begun to study and focus on PBL teaching theory and practice in the field of higher education. Among them, English majors pay more attention to PBL than other majors, but the research on the application of the PBL teaching method to promote the development of students' critical thinking needs to be further explored and developed. Based on the existing theories and practices, it is found that PBL is applied to different degrees in undergraduate English teaching of different majors. The application and practice

of PBL in English teaching for English majors is obviously more than that for non-English majors. In English majors, the application of PBL in English teaching for normal English majors is more obvious than that for non-normal English majors. Therefore, this study summarizes and explores the effectiveness and mechanism of PBL application in cultivating critical thinking in undergraduate English teaching from the perspectives of normal English majors, non-normal English majors and non-English majors, and puts forward reasonable suggestions for existing shortcomings.

## **2 Taking Undergraduate English Teaching as an Example**

### **2.1 Normal English Major Teaching**

At present, the classroom of English teachers' majors still follows the traditional teaching model, with teachers mostly, with teaching new knowledge on the stage and students passively receiving knowledge on the seat. In terms of Traditional Chinese education, under the pressure of exam-oriented education, most college students in China are often just recipients rather than participants in the learning process, which is a phenomenon that has appeared since they were young or even from the preschool education stage. Their absorption of knowledge is not entirely voluntary. This may lead to insignificant teaching effects and deviation of students' self-perception so that their thinking ability cannot be properly exercised. On the other hand, from the perspective of the educators themselves, the indoctrination-type education method makes students unable to achieve the teaching effect that is problem-centered and student-centered. The indoctrination method is likely to affect the practical application of the knowledge learned by English normal university students when they go to work.

The teaching effect of the English teaching method is related to the professional development of English majors, which focuses on improving students' teaching concepts rather than passively receive new knowledge [6]. If students do not understand the real meaning of the English teaching method and do not actively think about how to carry out the course to attract students' attention, they are likely to become a machine in class and even conflict with psychology. Therefore, as Xu argues, it is necessary to set up thinking training courses to cultivate students' critical thinking ability, which can teach students how to think [7]. If only one or two thinking exercises are involved in specialized courses, it is often insufficient, and this approach does not follow the gradual process of thinking formation. On the other hand, the teaching model should be changed. Inquiry-based learning mode should be advocated, and different activity forms should be carried out through groups [7].

According to the meta-analysis of 31 domestic and foreign studies by Liu, Wu, and Jiang, their research shows that the PBL teaching method has a strong promotion effect on the critical thinking of English major students and is helpful for the critical thinking of college students of different disciplines [8]. This means that under this learning mode, English teacher's major students can better understand the meaning of the subject and flexible use of the teaching model. For example, Guo, Li, and Yang's research, rain for PBL learning mode of study, is mainly divided into three basic teaching processes [9]. In terms of the unit of team teaching, the students as the main teachers under inquiry activity have a great influence on the teamwork ability of English teachers' major students, the

cultivation of divergent thinking, and the perfect expression of language. On this basis, the important premise is the flexible turnover of students' thinking.

## 2.2 Teaching Traditional English Major Students

Different from English normal students, traditional English majors focus more on the use of the PBL model of teaching. The goal of the teachers is not only to teach students how to use, but also to foster and develop critical thinking in the process of second language acquisition. Wen and Zhou argue that most English majors are still entering school in a mode that relies on imitation, memory, recitation, and retelling which puts thinking development at a disadvantage [10]. If students do not cultivate their ability to challenge difficulties and think independently from the beginning of college, it is difficult to change the original way of thinking in English learning. In addition, traditional English requires students to think in English. If they do not emphasize critical thinking in English from the beginning, it will be difficult to use English as a tool to solve problems later on. Instead, they spend a lot of time trying to overcome language difficulties. Liu and Pu show that the classroom should guide the development of student's critical thinking ability and give consideration to the training of language skills [11]. Under the guidance of teachers, students can get different solutions to the same problem in group communication and cooperation. Different ideas can not only be used in this class but also provide new ideas for solving similar problems in the future. The process of communicating with group members is indeed a process of language skills training.

In English debate, students lack critical thinking ability, which is mainly reflected in the lack of in-depth analysis of complex topics and academic issues in English, and often appear the phenomenon of "nothing in words" [12]. This construction of PBL debate teaching model focuses on after-class and learning reflection. Reflection is also an objective evaluation of oneself after group activities. In the reflection, it is important to think about critically analyzing mistakes, learn how to input information effectively in future group cooperation, exercise output ability, and avoid the situation of being "speechless." Debate requires not only sufficient knowledge for problem-solving, but also logic and skills. Under the PBL mode of teaching, students can use divergent thinking to demonstrate their views with different disciplines, and critically consider and supplement their views. The ability to think critically was also exercised throughout the process.

In this paper, critical thinking under PBL is also related to innovative thinking. Zhang argues that critical thinking is a kind of all-around thinking rather than full negation [5]. It gives creativity and allows people to have more choices and answers when facing problems. During the process of English learning, if students ask questions in PBL teaching mode, construct and analyze with critical thinking, they are more likely to create more meaningful ideas and methods, thereby better demonstrating their abilities in group activities. On the contrary, the open teaching mode based on PBL has more space for students to practice, which provides more opportunities for them to develop critical thinking skills.

### 2.3 Teaching Traditional English Major Students

Through the research on the influence of PBL teaching mode on critical thinking of English major students in the classroom, it is noticeable that PBL teaching mode has a positive impact on English major students' thinking comprehensively, critical thinking ability, and flexible use of knowledge.

However, in the college English classes of non-English majors, there is still a teacher-centered phenomenon in which students are passive or even forced to accept knowledge. Taking Zhang's empirical research on teaching reform of non-English majors under the PBL model as an example, Zhang believes that most current English teaching models place teachers in the center of the subject and take examinations as an evaluation means, resulting in frequent rote memorization [13]. Compared with English majors, many non-English majors' students regard college English as a common course, which is not valuable for their future study. It is the reason why they passively accept teachers' knowledge and ignore the cultivation of English thinking in the whole process. In addition, non-English majors are relatively weak at collaborative competence and questioning in the English classroom. They hold the idea that what the teacher says must be right, which leads to the narrowness of thinking.

Most non-English majors will complete college English teaching in their first and second years after entering university. Indeed, as a public course, many schools will appear less scheduled, with insufficient teaching time. In the only teaching time, for non-English majors, the more important goal is to stimulate students' interest in English learning. Teachers can guide students to put forward interesting topics or projects with the help of the PBL teaching mode, and then make students truly realize autonomous learning in problems through step-by-step thinking construction. From the same point of view, this will also improve the requirements for English teachers. Zhang also mentioned that teachers only emphasize the teaching and mastery of language knowledge points, and repeat the stylized knowledge points year after year [13]. Indeed, the traditional education of experienced college teachers has been deeply rooted in thought. When they face the reform of teaching mode, they also need to constantly improve themselves and innovate teaching methods.

When utilizing PBL teaching mode, firstly teachers should first abandon mechanized textbook teaching. During this process, the purpose of teaching should not stay in short-term English imitation and memory but should highlight the cultivation of students' critical thinking ability. The second; As the final goal of language learning, the communication of group members is also a crucial part of learning. Non-English majors can expand their thinking through group cooperation in College English classrooms. Group members can exchange ideas and cooperate together. Hence, students as the center of learning can carry out independent critical thinking in their professional learning. The group teaching mode will eventually benefit from interpersonal communication and personal thinking.

It is necessary to carry out an effective teaching reform mode. As Zhang's research shows, the PBL model is a beneficial supplement and natural extension to the traditional teaching method. It is helpful in English-Chinese translation teaching, and it is also applicable to other teaching modules [13]. Furthermore, Chen finds in his empirical research that PBL teaching mode has a positive effect on improving students' critical

thinking and second language acquisition [14]. Although there are some deficiencies in the research cycle of both, and the students are still in the stage of gradual adaptation in the experiment. However, input of a new teaching mode, the difference of the average value of the final questionnaire data and the comparison of the pre-test and post-test p-value results, seeing the significant effect of PBL teaching mode on the improvement of Non-English Majors' abilities in all aspects.

Although PBL has generally shown positive pedagogical results in non-English classes, a review of the relevant literature reveals that it has some practical difficulties within other professional field disciplines. For example, in the classrooms of overseas students majoring in Chinese language, research results show that the pure PBL teaching method sometimes does not achieve the expected teaching efficiency. Due to the limitations of different cultures and the Chinese language levels, the PBL method also requires interdisciplinary knowledge interchange and links to overseas students' personal input and learning outcomes [15]. Therefore, as with the teaching of non-English majors in China, a flexible interweaving of knowledge by teachers is needed to facilitate the broadening of students' thinking and perspectives and thus achieve the teaching purpose of developing critical thinking.

### **3 The Deficiency of PBL Teaching Method**

#### **3.1 The Deficiency of PBL Teaching Method Based on English Majors**

Although we design scenarios, give questions and divide the class into groups for discussion, teachers often ignore the starting point based on cultivating students' critical thinking and still take teachers as the center for guidance. The students' thinking construction ability for problems is not well cultivated.

Compared with science and engineering students, foreign language majors lack logical thinking ability in learning, so in the process of using PBL teaching method, students will still be unable to answer the questions raised, which is difficult for the implementation of this teaching method for foreign language majors. Therefore, it is necessary to design a problem-based teaching method which is appropriate for foreign language majors.

During the current teaching process, most people still pay attention to foreign language communication ability and ignore the cultivation of foreign language logical thinking ability. Therefore, there will be some difficulties in the process of students' independent discussion of problems.

In the current traditional teaching method, students still train their skills through memory, recitation, and imitation, resulting in their divergence and weak innovation ability, which makes PBL teaching method to become unable to achieve its due effect after being introduced into the foreign language classroom.

#### **3.2 The Deficiency of PBL Teaching Method Based on the Teaching of English Normal Major**

As a student-centered situational teaching method, PBL teaching method still floats on the surface when creating a situation and bringing students into the situation.

In the current education of introducing PBL teaching method to college English normal students in China, teachers do not pay enough attention to student-centered analysis and problem-solving. Thus, they cannot give full play to students' subjective initiative to participate in the routine and solution of problems. t training of English normal students. In the current examination-oriented education in China, it stifles students' innovation to a certain extent, resulting in students' limited acquisition of inherent foreign language teaching methods and lack of cultivation of students' critical thinking ability. So that students' critical thinking ability can not be improved. There is lack of sufficient empirical research to find out how PBL teaching method fits the current situation of foreign language normal education in China.

### **3.3 The Deficiency of PBL Teaching Method Based on English Teaching for Non-English Majors**

Teachers need to invest more time and energy in designing scenarios and guiding students to participate in discussions, which will be detrimental to the implementation of PBL teaching method in college classrooms. As English class is short in non-English majors, PBL teaching mode is difficult to achieve results in a short time. The limitations of measurement tools and students participating in PBL teaching method classroom cannot adapt to the new teaching method, resulting in the effect is not significant.

## **4 Conclusion**

PBL teaching mode emphasizes students' independent learning, pays attention to the process of exploring and solving problems and the cultivation of students' comprehensive ability, which is consistent with the goal of cultivating applied talents under the current situation. Compared with traditional teaching, the PBL teaching mode enables students to build new knowledge and realize the development of their abilities, which has significant effects on promoting the development of student's critical thinking ability and language acquisition ability. Therefore, the PBL teaching mode is worthy of being widely applied to college English teaching with English majors and non-English majors. The PBL model has brought both opportunities and challenges to college English teaching. Teachers should enrich their theoretical knowledge, improve their professional level, and constantly explore and strive to cultivate the needs of the times.

PBL mode is not a method to completely replace the traditional college English teaching, but a beneficial supplement and extension of the traditional teaching method. However, how to apply PBL teaching theory to practice and generate efficient practical benefits still needs to be further explored and studied. In the future, it is hope that teachers can continue to implement college English teaching mode based on the actual situation of the current college English teaching, so as to improve the language level and comprehensive ability of students, and to cultivate interdisciplinary talents needed by the society.

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