

A Study on the Design of Problem-based Learning (PBL) in English Reading Teaching from the Perspective of English Subject Core Competency



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Abstract

According to the General Senior High School English Curriculum Standards (2017 edition) revised in 2020, the English subject core competency is the basis of the formation of the new English curriculum standards. And the English core competency contains four elements. The process of teaching should facilitate the cultivation of students' language ability, cultural awareness, thinking quality and learning ability. Among them, the language ability goal requires teachers to cultivate students' ability to integrate and apply language knowledge, understand the meaning of language, infer the meaning of the text, refine and expand the meaning of the theme, and analyze the structure and logic of the text in English reading teaching. However, in English reading teaching, teachers should not only cultivate students' ability to understand and comprehend explicit knowledge and information of discourse, but also cultivate students' ability to acquire tacit knowledge and information of discourse. An important method to achieve this goal is using problem-based learning (PBL) reading activity design. This study aims to analyze and design reading teaching activity by using problem-based learning method from the perspective of English subject core competency.

Keywords

English Subject Core Competency, Problem-based Learning, English Reading Teaching Design

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1. Introduction

1.1. The Core Concepts of the Study

1.1.1. Problem-based learning (PBL)

Problem-based teaching method originated in the 1960s. American scholar Barrows (1980) systematically expounded the teaching mode and connotation of "problem-based learning" in his research. At the beginning, problem-based teaching method was partially applied in higher medical education in the United States. With the development of this method, schools in various countries use this method for teaching. Xiong Liwei (2021) believes that the problem-based teaching method help students form a logical thinking in English learning, and understand new English learning con-

cepts, and adjust the pace of English learning. When designing teaching problems, teachers should take students as the main body of the class, and provide students with opportunities to ask questions and explore solutions independently. English teachers should play a different role in teaching, and establish a harmonious relationship with students. Based on the teaching design principles, a good teaching design models should be problem-based, systematic and scientific (Zhao, 2015). This method aims to guide students to establish a learning mode that suits them by strengthening self-learning and solving problems, and to build a teaching situation that is more in line with real life, which will guide students to learn English knowledge in the state of being learning subjects. In the process of exploring problems, students can not only effectively complete the teaching tasks, but also exercise their thinking ability in a subtle way, and cultivate the ability to understand and comprehend the explicit knowledge and information of the text and the reasoning ability of tacit knowledge and information, so as to achieve the language ability goal in the core English competency.

1.1.2. English subject core competency

As the basic requirement of cultivating talents in the 21st century, core competency has attracted great concern and become a hot topic in many countries and regions in the world. In 2014, the Ministry of Education of China formally proposed the concept of "core competency system". At the same time, the new curriculum standards for general senior high school have been revised, and core competency was also regarded as an important education goal. Cui Yunluo (2018) claimed that the subject core competency is the concentrated embodiment of the value of subject education. Besides, subject core competency is also the students' correct values, necessary characteristics and key competencies which gradually formed by students' continuous subject study. The core competencies of different disciplines are different. For example, there are four aspects of core competency in English subject, namely language ability, cultural awareness, thinking quality and learning ability. The concept of subject core competency embodies the following three principles: reflecting the essence of the subject and educational value, teaching content is clear, teachable and learnable, and positive significance to individuals and society. However, current English reading classes rarely follow these principles. Wang Qiang (2017) pointed out that the teaching content of reading courses is still limited to language, vocabulary and grammar knowledge, which does not rely on the subject content well to teach students the implied meaning behind the text. Teachers should cultivate students' reading ability and reading strategies through English reading teaching in class. In the process of teaching reading, teachers should always keep in mind that the teaching method should serve the teaching goal. The goal of reading teaching is to promote the development of students' reading literacy, and teacher should pay more attention to avoid the wrong practice of teaching for the model.

1.1.3. The relationship of PBL and English subject core competency in English reading teaching

First of all, the problem-based teaching method emphasizes the use of virtual problem scenarios or real cases to drive students' positive learning, and students often discuss the answers in the form of group cooperation, which provides an effective teaching approach for the cultivation of the core competency of English subject. On the other hand, the specific teaching strategies of PBL should be designed according to the objectives of core competency. The two integrate with each other to jointly promote the development of students.

1.2. Theoretical Basis

1.2.1. Constructivism Theory

The view of learning of constructivism theory believes that learning must stimulate the individual to reflect and think continuously through the interaction between learners and teachers. Similarly, the constructivist view of teaching emphasizes that teachers are the helpers of students' learning, and teaching should not only be the transfer of knowledge, but also provide learners appropriate problem situations and help students find ways to solve the problems (Piaget, 1997).

1.2.2. Zone of proximal development (ZPD)

According to the zone of proximal development theory (Vygotsky, 1978), only the "scaffolding" which built according to the student's "zone of proximal development" (ZPD) is the most effective for students' development. On the basis of ZPD, Wood (2001) proposed the scaffolding theory. He believed that the learning task of managing knowledge is gradually transferred from teachers to students themselves through scaffolding (the help of teachers), and finally the scaffolding is removed, which is called scaffolding teaching. In scaffolding teaching, teachers play the role of instructor and assistor, and they are the "scaffolding" in the process of students' learning, constructing, and internalizing those skills and knowledge that enable them to engage in higher cognitive activities. Scaffolding teaching consists of several aspects: building a scaffold, entering the situation, students' independent exploration, collaborative learning, and the evaluation.

2. Design of PBL in English Reading Teaching

General Senior High School English Curriculum Standards (2017 edition) clearly put forward the requirements for the creation of activities in the three stages of reading teaching, which require teachers to design a series of reading activities to enhance students' understanding of texts, and at the same time guide students to use what they have learned in reading texts. The teaching link is combined with questions to cultivate students' language ability, cultural awareness, thinking quality and learning ability. Ji Hong (2019) believes that reading questions are usually divided into presentation questions, reference questions and evaluation questions. The three types of questions correspond to the cognitive level of students, from memorization and comprehension to application analysis, and then to comprehensive evaluation, and the level of thinking is ascended from low-level to high-level. This study takes Unit1 Great scientists as an example, which is chosen from compulsory five for senior high school English in the PEP edition, to design the reading activity of the PBL method. The study should focus on the lead-in, pre-reading, while-reading and post-reading of reading classes to understand whether these activities are conducive to cultivating students' core competency.

2.1. Lead-in (Lead-in the lesson by problems which can activate students' knowledge schema)

Effective lead-in of the lesson can activate the existing knowledge in students' minds. Under the guidance of questions, students connect the old knowledge schemas with the new topics of this class actively, which can pave the way for reading comprehension in the next step. In this class, teacher should design questions that related to the topic of scientists, and grade three students have already known some scientists in different fields, so teacher can display some pictures of scientists, and then ask students the following questions:

- (1) You must be familiar with these scientists, so do you know the name of these scientists?
- (2) Can you say something about their achievement and deeds?

Teacher leads students to have a brainstorming with their group partners. Students start the brainstorming according to these clues, and talk about their thought and attitude toward scientists they've known.

2.2. Pre-reading

Based on the questions in the introduction, students have already developed a certain interest in the content of this unit. At this time, teachers should design new questions based on the students' current level and the content of this lesson, so that students can appreciate and read the text with the questions. This text mainly describes the scientific investigation process in which the protagonist Snow traces the source of cholera, predicts the primary cause, determines the research method, and analyzes the evidence, finally finds the source of the disease and gives a solution. So before reading the text, students should consider these questions: "What do you know about infectious diseases? What do you know about cholera before? Do you know the sequences in scientific research?" Students can combine these questions with biological knowledge they learnt before and talk with their partners. And teacher should provide a mind map about the process and steps of scientific researches to help students understand the question and finish the group work.

The mind map stimulates students to actively think about how Snow discovered cholera and eventually found a cure for cholera. And these questions give students a preliminary understanding of the processes and steps that can draw a scientific viewpoint, laying the foundation for the following readings.

2.3. While-reading

In while-reading part, students complete different reading tasks driven by questions, and improve their ability to acquire information, decode information, summarize and comprehensively use text information.

2.3.1. The first reading (skimming)

Students read the passage for the first time and pay more attention to the title and the first paragraph try to find out the characteristics of Snow and the basic information of cholera. So, teacher should ask students to think about the following questions: "What's the characteristics of Snow?", "Why the cholera was terrible for people at that time?" and "How the cholera attacked people?" Through the design of reading activities and the completion of reading questions in this part, students can extract background information and basic factual information about Snow and cholera.

2.3.2. The second reading

In this part, students need to read the passage carefully and focus on the important steps that Snow taken in the investigation and try to learn the new words and the structure of passage by working in groups. Before reading the passage, teacher asks students the following questions, and students answer the questions according to the information gained from the passage: "Which theory did Know want to prove? And tell the reason for it.", "Why Snow collected data on

where those were ill or died got their water?”, “How Snow analyzed the results that the cause of the illness?”, “How did Snow find the evidences to confirm his conclusion?”

After the discussion with group members, students should describe the steps of Snow’s research. Teacher can use blackboard or ppt as assistance to facilitate students to clarify the details of the passage and summarize Snow’s scientific research process.

2.3.3. The third reading

In this part, students should read the passage again, and summarize what they have learned and the main idea of the passage in one sentence. In the specific implementation process, teachers ask students to share their summaries in groups first, and then share and communicate in the whole class. After that, the teacher continued to ask questions which are conducive to exercising students’ summarizing ability, such as “What the causes of the cholera outbreak according to the passage?”, “How was cholera spread?”, “How did Snow make people believe the second idea was correct?” and summarize the characteristics of Snow. In the process of Q&A, teachers help students to further understand Snow’s unique charisma and rigorous scientific attitude through problem-based learning.

According to the problem-based learning in while-reading part, students follow the guidance of logic questions and exercise their language ability. The learning activities which allow students to summarize Snow and other scientists’ scientific attitude and characteristics can improve students’ culture awareness. Group work and brainstorming exercise students’ cooperation ability and exploration ability, which can correspond with the learning ability in core competency.

2.4. Post-reading

In addition to completing the tasks in the textbook, reading teaching should also extend the learning content and carry out reflective evaluation.

When designing post-reading questions, teacher can pay attention to the topic of this class, and ask students discuss the questions in groups: “Who can tell the story of Chinese scientists or doctors defeat stubborn diseases?” and “What can we learn from the scientists or doctors who have dedicated their lives to science?” In this part, through extending the discussion of relevant knowledge to a wider social perspective, students establish a correct world and life values and integrate with the ideological and political elements, which can improve students’ thinking quality.

After finishing the class, teacher should make a self-evaluation by using the five-pointed star table to check whether these teaching design and questions meet the needs of training students’ English subject core competency.

Core Competency	Your Evaluation (1-5 points)
Language ability	
Learning ability	
Thinking quality	
Culture awareness	

3. Conclusion

In a conclusion, the problem-based teaching method is a very important teaching method. Teachers can change the constraints brought by traditional teaching methods to students by using it correctly, so that the quality of teaching can be improved. At the same time, the use of problem-based teaching method can effectively improve students’ subject core competency, and the two complement each other.

However, when using the problem-based teaching method, certain principles must be followed. First, the questions must be asked for all students, so the setting of the question should be moderate in difficulty. And the teacher must inspire students, so that they can think positively and stay enthusiastic about the class. Secondly, the questions setting should be attractive, which can arouse their interest in discussion and thinking, and cultivate their spirit of inquiry. Finally, the setting of the question should follow the principle of openness, that is, students can explore the problem from different perspectives, so that multiple results can be obtained, and then students can choose the best answer.

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