

Practice and Exploration of Cultivating Students' Critical Thinking by Using Problem-Based Learning

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Abstract: Currently, the English teaching at elementary schools in China is generally lack of training of students' thinking ability. However, critical thinking is the most important and valuable ability for learning. In order to develop students' critical thinking skill, teachers introduced problem-based learning into English teaching at elementary schools by taking three stages as setting prior-, during-, and post-reading as an example, explored students' critical thinking ability through creating a questioning atmosphere, setting up a thinking platform, and improving the quality of problems. Our practical performance showed that problem-based learning can significantly improve students' thinking quality.

Sci Insig Edu Front 2019; 3(1):155-167.

Doi: 10.15354/sief.19.ar067

Keywords: *Reading comprehension teaching; Problem-based learning; Critical thinking*

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Conflict of Interests: *None.*

THE “English Curriculum Guideline for Compulsory Education (China, 2011 Edition)” pointed out that English curriculum at the compulsory education stage has dual characteristics of both instrumentality and humanity. In terms of instrumentality, English course undertakes the task of cultivating students’ basic English literacy and developing students’ thinking ability. That is, students are able to acquire basic language knowledge, develop basic skills of English listening, speaking, reading, and writing, and get the basic ability of communication with others in English. Furthermore, it promotes the development of thinking ability, and lays the foundation for future English learning and other relevant courses in English (China Ministry of Education, 2012).

At present, China has the largest English learning population at elementary schools and instructors of elementary English. Over the years, China’s elementary English teaching reform has made great progress. In each sized city (large, medium or small), internet and multimedia have become popular in teaching, and the instructing methods in class are diversified. However, from various reasons, our conception, system, structure, education mode, contents and methods all are relatively lagging behind. The traditional teaching mode still dominates the class, which emphasizes majorly on teaching methods but not learning methods, on asking students questions but not evoking thinking, on concluding but not the processing, and on transferring knowledge but not developing ability. For taking elementary English reading comprehension as an example, students’ participation looked implemented, but the fact is that students’ learning was constrained, which often displayed in a one-way verbal communication as “teacher asks, and then students answer”, a model with less efficient in cultivating students’ thinking ability.

Currently, critical thinking has been widely set up as one of the goals of education, especially of higher education. As indicated by Roche (2015) that students cannot passively accept information in the process of learning, but actively and initiatively think, and proactively analyze what they learned to form their own attitudes and perspectives. Bringing critical thinking into elementary English class, not only meets the requirements of the new curriculum guideline for English education, but also helps students develop good thinking habits from an early age.

Problem-based learning is a widely used teaching mode in higher education in Europe and the USA. It is a relatively new teaching mode with a core idea to establish a student-centered learning environment, through setting up questions based on students’ real life and experience, guiding them to explore new knowledge and solve practical problems. Actual practice showed that this mode can effectively cultivate students’ critical thinking and improve their ability to solve problems (Xia et al., 2014).

This study took problem-based learning as the key and entry point for cultivating innovative thinking ability in class. We used the teaching cases in the textbook of English (The People’s Education Press, China, same below), and explored strategies and methods for cultivating students’ critical thinking in elementary English reading comprehension and improving their thinking quality.

Prior Reading – Based on the Theme, Creating a Questioning atmosphere

The prior-reading section is crucial to the entire comprehension teaching. Activating students' background knowledge related to the topic of the story can effectively improve students' understanding. At present, the prior-reading activities designed by most teachers are relatively simple, such as by cutting into the animation in a short period of time and asking "What is the story talking about?" etc. to let students think. Although this method can quickly get to the topic, it lacks the vitality of thinking because of the shortage of interaction between teachers and students, and among students. If the teacher can stand on the topic of the reading text, let students raise their interested questions based on the topic, or engage in the interaction based on the topic, it will activate students' thinking and enhance their linguistic expression and thinking ability.

Promote Interaction with Topics and Create Opportunities for Questioning

Class teaching should provide students with the opportunity to exchange and interact, so that they can constantly exchange their ideas and realize a collision of ideas. Each unit of the English is topic-based. Prior reading the text, teachers can adopt Problem-based learning, let students carry out independent communication around the topic, and gradually cultivate their awareness of questioning.

For example, "Unit 2 *My Week*" Volume 1 in textbook of the fifth grade is based on a student's one-week schedule. In the Reading and Writing section, the title is "Robin's Advice", and it discusses the daily arrangement of Yifan Wu. Prior reading, the teacher can guide students to observe their own curriculum and encourage them to guess the teacher's favorite workday.

The teacher showed his/her own curriculum (**Table 1**):

Table 1. Teacher's Curriculum.					
	Monday	Tuesday	Wednesday	Thursday	Friday
1			English	English	English
2	English	English	English		
3		English			
4	English	English	English	English	Arts
5				English	
6	Arts				

T: Boys and girls guess, what is my favorite day?

S1: Monday.

T: Why?

S1: Just a guess.

Then, the teacher guided students to pay attention to the curriculum and obtain more information through questions.

T: You may ask me some questions to get the idea.

S2: What subject do you like?

S3: How many lessons do you have on that day?

S4: What do you usually do?

S5: Which one do you like, English or art?

S6: Do you have two classes that day?

.....

The prior-class questioning activity based on the topic as a main line can activate students' knowledge reserve, and mobilize the enthusiasm of the whole class. The teacher gives each student the opportunity to ask questions. The students develop their thinking ability and language expression ability via a positive circle of questioning, answering questions, and re-questioning. This kind of activity can not only pave the way for learning new contents, but also give the initiative to students.

Promote Interaction Stirs up Doubts Using Pictures

If teacher always asks questions during the learning process followed by students answer, this process will make students be passive learners over time. To let students learn how to question, it is not simply a matter of time to ask questions, but to require teachers to conduct training and guidance strategically (Li & Yan, 2016). Before reading the text, teacher can let students observe the text picture, understand the background of the story, and guide students to ask questions about the story to stimulate the students' interests in further reading.

The Fourth Grade Volume II of Unit 3 *Weather* is based on common weather and corresponding event arrangements. The Reading and Writing section is a text of a postcard genre that describes the weather and suitable activities in Sydney and Beijing. Before start reading, teacher first presents the text illustration (see **Figure 1**) that retains the name and signature of the letter, and then instructs students to observe the illustration and ask questions.

Under the guidance of the teacher, students can ask meaningful questions based on the picture information, for example: Where is John? Where is John's father? What's the weather like in Australia? Is it hot in Australia? Can John go swimming? ... Problem-based learning can not only fully exercise students' verbal ability, but also enable students to predict and associate text content, stimulate students' curiosity and desire for knowledge, and enable students to form reading expectations, thus students can actively read stories, answer their own questions. Once students develop the habit of asking questions and learn how to ask, the possibility of asking questions in class will become bigger (Chen & Wang, 2009).

Figure 1. Illustration That Retains the Name and Signature of the Letter.



During Reading – Focus on Strategy Guidance and Build a Platform for Thinking

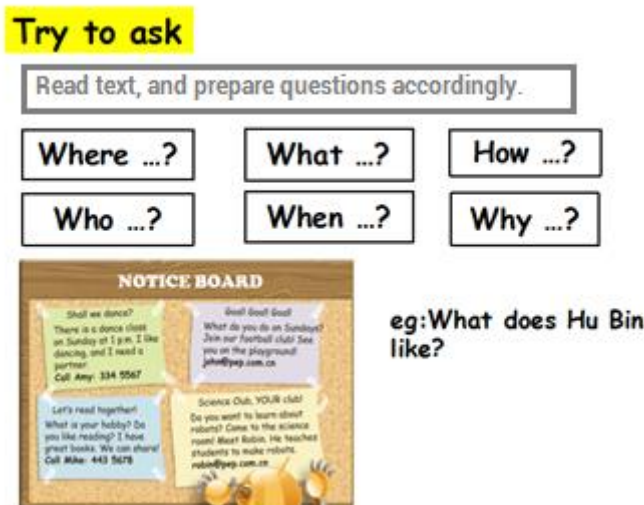
During reading, teachers should give students time to think independently. In addition, teachers should presuppose the difficulty encountered by students when asking questions, including giving students some expressive support, as well as guiding the generative problems in the questioning process. For example, what interrogative words should students use for questioning? What are the dimensions for students to question? How to make students who lack of learning ability can also ask simple questions? During reading, if the teacher wants to give students the opportunity to question, they should promote students' thinking to participate in the learning activities.

Focus on Interrogative Words and Build a Thinking Frame

Teachers can capture students' questions focusing on the text in the teaching, and use infiltration questioning skills, such as providing keywords, to build a questioning frame and to cultivate students' critical thinking ability.

For example, the Sixth Grade Volume I text book Unit 5 *What Does He Do?* The theme of this unit is a common occupation, the Reading and Writing section is an article about hobbies, dream careers, and jobs. Teacher can guide students to question after presenting the text background, and provide the students with some special interrogative words such as who, where, what, how, etc. (see **Figure 2**). In order to allow students who are lack of learning ability to participate in, the teacher can guide students

Figure 2. Providing Students with Special Interrogative Words.



to work together and give an example of the problem: What does Hu Bin like? This allows students with different learning levels to question the text.

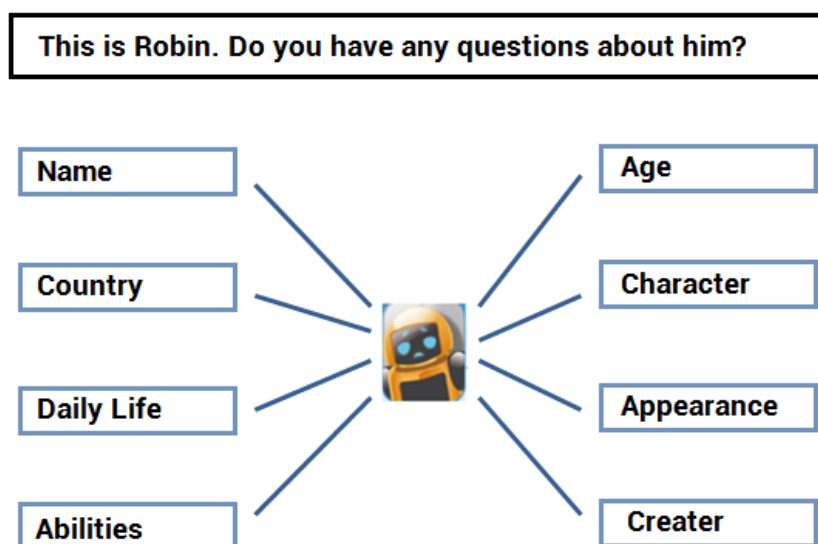
Since teacher provides appropriate support to students, the students have clear goals for the direction of the questions, so the thinking is more rational and logical. The use of group-based design to guide questioning can avoid problems that are meaningless or not in place (Kwan, et al., 2015). Inspired by the teacher, students raised the following questions: What does Sarah like? Where is Robin want to work? What does Hu Bin want to be? Who can be a scientist? What can you be if you like sports? ... From the actual class, the questions raised by students are in-depth, meticulous and valuable. If students' question is incomplete, the teacher needs to provide assistance in time. For example, when a student asks a question on half way, when he or she says: Where Robin work...? Although students encounter some obstacles when questioning, if the teacher consistently penetrates the questioning strategy in the class for a long time and continue to encourage, students will develop a habit of questioning.

Expand the Dimension of Thinking with Maps

As a learning strategy, mind map can promote meaningful learning, integrate them with new and old knowledge, construct a knowledge network, and enrich the knowledge structure so that they can grasp knowledge as a whole. In the process of cultivating students' questioning ability, teacher can use the mind map to guide students to raise questions from different angles and promote their active participation.

For example, the Fifth grade text book Volume I Unit 1 *What's He Like?* The theme of this unit is to describe the appearance and character of others. The Reading and Writing section is Yifan Wu's diary, which mainly describes the basic features of Robin. In teaching, students could be guided to understand the personal information of the person through questions. In order to let the students open their mind and activate their existing knowledge reserve and life experiences, the teacher first guide the students to think about the directions from which they can base questions on, thus enrich the content of the mind map (see **Figure 3**), and finally present the questions in a full dimension.

Figure 3. Teacher's Guide to the Directions of Questions.



The aid of mind maps makes students' Problem-based learning have a clearer direction of thinking, and thus trigger their divergent thinking (Nasution, et al., 2016). With the focus of thinking, after the students fully discussed in their group, they raised the following questions from different directions:

- S1: What's his name?*
- S2: How old is he?*
- S3: What's he like?*
- S4: Who made him?*
- S5: Is Robin helpful?*
- S6: Who makes me finish homework?*

After that, teacher and students modify, classify, and organize the questions they raised. In this process, the teacher also gives guidance method to the students. During the learning, the main line of using the mind map runs through the whole class. In generating and thinking training, the teacher and students jointly establish a bridge that links thinking and language learning.

Use the Scene and Having Fun of Thinking

Whether students can truly participate in communication and actively questioning in class depends largely on whether the situation created by teacher can stimulate students' expression desires and interests (Jaeger & Adair, 2014). In the class, teacher should create real and interesting scenes, and use this as the main line to achieve learning goals step by step.

For example, the Sixth grade text book Volume I Unit 3 *Where Did You Go?* The theme of this unit is a common holiday event. The Reading and Writing section is a conversation about holidays. The sentences used in the conversation are 'How was...? Where did you go? What did you do? etc. The teacher first starts from his/her National Day holiday, guides students to interview him/her, and provide some tips, such as the content of the interview, the sentence patterns that can be used (see **Figure 4**).

The teacher said to the students: I went to Beijing last National Day holiday. Do you have any questions about my National Day holiday? The teacher asked students to ask one or two questions which they were interested in first. The questions asked by the students are: Where did you do? Did you visit the Great Wall? How did you get there? etc. Then, the teacher asked a student to interview him/her through a series of different questions, and finished a completed and logical dialogue with the teacher.

Figure 4. Tips for Interview Questions.



S: Hi, Miss Wang. How was your National Day holiday?
 T: It was great fun.
 S: Really? Did you go travelling?
 T: Yes, I went to Beijing with my family. We had a good time there.
 S: How did you go there? By train or by plane?
 T: By plane. We stayed there for five days.
 S: Where did you go in Beijing?
 T: We visited the Great Wall, the Palace Museum and the Summer Palace.
 S: Sounds great! I visited the Great Wall last year. It was beautiful. Did you take photos?
 T: Yes, a lot. I tasted many good foods, too.
 S: Wow, did you eat Beijing roast duck?
 T: Of course. It was delicious.
 S: I know a lot about your holiday. Thank you.
 T: You're welcome.

In the interview above, the teacher let the students perceive the interview process initially, demonstrated how to focus on the topic, how to question skillfully, how to undertake the topic, and then the teacher refined the elements of the interview and the questioning skills (see **Figure 5**). After that, the teacher let the students conduct interviews and learn how to questions and answer them through exchange and interaction with their peer partners.

Figure 5. Refine Elements of the Interview.



By presenting the basic steps and key points of the interview, the teacher let the students emphasize on the conversation. Students can internalize what they have

learned and conduct real communication with their peer partners. Students can initiate questions during the interview, listen carefully to each other, conduct effective questioning, and adjust questions appropriately. They can also turn the topic and end the conversation at the right time. In this activity, students have a deep understanding of the method of questioning and have fully trained their critical thinking skills.

Post Reading – Achieve Meaningful Communication and Improve the Quality of the Questions

The post-text reading section belongs to the language output section, which is an important part of reviewing and applying the content learned, and also a platform to show students' learning outcomes and reading results. In this session, teacher encourages students to change their perspectives and thinking deeply, so that students have the opportunity to interpret, examine, and dialogue the text in a personalized way to grasp the connotation of the text.

Encourage Independent Speculation and Deepen the Meaning of Students' Doubts

Elementary English teaching emphasizes on communication and dialogue. Therefore, how to create opportunities for students to express their opinions and develop their thinking skills has become an essential task of reading teaching. In the actual context, students often make a hard copy of the textbook when they express their words verbally, they are lack of thinking in the content, and it is difficult to form their own independent point of views.

For example, in the Sixth grade textbook Volume II Unit 2 *Last Weekend*, the topic is regarding how to tell what has happened in English. The Reading and Writing section is about the unpleasant experience of the Yifan Wu's family in a hotel. Instead of simply reading the performances, the teacher continues to use the Problem-based learning to guide students to think independently and ask their own questions. The following are some of the questions raised by students:

Group 1: How to choose a hotel before you check in?

Group 2: What can Yifan Wu's family do after this? Maybe they can try to get a half price.

Group 3: They were not happy. How can they try to be happy?

Group 4: ...

The teacher guides the students to express their questions freely after reading the story. On the one hand, students can get the opportunity to express their thoughts directly, and on the other hand, teacher can know students' understanding level of the text. This open-ended activity gives students an experience of discernment. Although their expressions contain grammatical errors, and even groups are expressed in a mix-

ture of both Chinese and English, students have the opportunity and the right to think independently. The teacher guides them to think further based on the questions they raised, and inspires students to think more deeply about the contents.

Change the Text Form to Increase the Depth of Student' Questioning

In elementary English class teaching, the teacher can enhance student's interest by respecting their learning experience, and by enriching the interaction in class. It is possible to activate students' awareness of language use autonomously, to promote the development of students' thinking, and to enable students to produce a dynamic and true verbal expression that reflects the value of the English curriculum (Hua, 2015). In the post-reading session, teacher should guide students to use English knowledge they have learned and reach consensus and understanding in communication.

For example, the Fifth grade textbook Unit 5 *There Is a Big Bed*. The topic is to describe the items in a room. The Reading and Writing section mainly describe the old house that Mr. Jones has just moved into. The text is presented in the form of reading comprehension. In the post-reading session, teacher changed the text form and created performance tasks (see **Figure 6**) to guide students in communication activities.

Figure 6. Teacher Creates Performance Tasks to Guide Students How to Talk.

Try to act

Mr. Jones and Miss Green are talking about their new house, can you act the scene?

1. ★★

It's a Monday morning.

Mr Jones: I moved into a house yesterday.

Miss Green: Wow! Where ...?

Mr Jones: It's near the...

Miss Green: Is it clean?

Mr Jones: No, the rooms are...

Miss Green: What's in ...?

Mr Jones: There are ... Oh, no! There is a mouse.

Miss Green: A mouse? Where ...?

Mr Jones: ...

Miss Green: Do you need any help?

Mr Jones: Thank you, but Robin will help me.

2. Imagine, and make a dialogue.



The expression structure of this lesson is relatively simple. In post-reading consolidation session, if the teacher was simply to allow students to retell the text, it would be monotonous and boring, and additionally the student would not be able to grasp the major point of the text flexibly. In this post-reading activity, the teacher respected student's existing experience and differences in learning ability, and provided opportunities for students in different learning levels to create and edit conversations based on their understanding of the text. In the process of creation and editing, students can grasp the core issues, gather text details, and develop rich associations to make the characters live.

In reading comprehension teaching, whether it is prior, during, or post reading, Problem-based learning can be skillfully used before, during, or after reading, which is of great significance for cultivating students' critical thinking. However, Problem-based learning is still in the early stage in English teaching in China, and its use in English education in elementary schools is even rarer. Due to lack of resources, this study still has some shortcomings.

In short, critical thinking can stimulate and maintain students' interest in learning, and create an ideal and more realistic environment. The cultivation of students' thinking in English reading comprehension teaching in elementary schools cannot be separated from the in-depth interpretation and creative use of the text by the teacher. ■

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Received: 15 May 2019

Revised: 23 May 2019

Accepted: 5 June 2019