Computer Flipped Classroom in Critical Reading of College English

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Abstract. With the continuous development of education, exploring new teaching models has become a concern of people. This research mainly explores the application of computer-based flipped classroom in critical reading of college English. A class of third-year college students is used as the research object. During the experiment, the teaching mode under the new mode is used to teach. After the experiment, the test scores before and after the experimental class are compared. After the experiment, through reading test questions and questionnaires, we can understand whether the flipped classroom teaching model is helpful for students' performance improvement. And in terms of emotional attitude, acceptance, method feedback and effect evaluation, understand the students' attitudes after using the model before and after the experiment. Both the experimental class and the control class take a critical reading comprehension test and a regular reading comprehension test. Through questionnaires and interviews, the changes in critical reading ability and critical thinking ability of experimental class students are analyzed. In the critical reading comprehension test, the highest average score of the experimental class was 45.6, and the pass rate was 74.5%. This research helps students develop critical thinking.

Keywords: English Critical Reading, Computer Flipped Classroom, Reading Comprehension Test, Critical Thinking

1. Introduction
At present, the teaching of English grammar in our country regards the explanation of grammar as an important part of grammar learning, and most of this part is carried out under the "supervision" and assistance of teachers. Teachers explain the rules, the purpose is to let students understand the rules, and the purpose of understanding the rules is to use the rules, but it is very difficult for the students to learn to use the new rules and cultivate the language habits. In order to learn to use the new language rules and enhance the sense of language, students need to do a lot of practice and practice.

The importance of questioning in the classroom is to be able to test students' understanding of the materials they have learned, and to encourage students to think proactively [1, 2]. Secondly, different types of classroom questions can induce students to think at different levels, and high-cognition questions can promote students to think at a higher level [3, 4]. College students are in a critical period of thinking training and thinking plasticity. Teachers should guide them to critical reading, let them...
gradually form critical thinking, and make it a life-long force to adapt to the changes of the times, so that they will not be separated in the future. This kind of information is troubled, will not be eliminated by the times, will not passively identify, and realize self-life value [5, 6]. For college English teaching, reading teaching is a routine and important teaching content. Reading articles as a carrier to cultivate students' comprehensive language skills such as listening, speaking, reading, and writing is one of the important ways of college English teaching [7, 8]. Due to the development of the times and the needs of reality, teachers not only need to develop students' basic reading skills for exams, but also guide students to conduct critical thinking and critical reading, improve comprehensive reading skills, and learn to examine correctly, rather than simply agree or passively accept [9, 10].

Aiming at the current problems in high school grammar teaching and the teaching concept of flipped classroom, this article attempts to study the use of "flipped classroom" teaching mode in college English reading teaching to enhance students' use of grammar knowledge to achieve communicative competence.

2. College English Critical Reading

2.1. Computer Flipped Classroom

Teachers prepare related micro-classes or videos in advance, and post them to their own or school blogs, allowing students to log in to the software platform at home or school to watch the video. Students can communicate their learning experience online or where there are still doubts, and live or Teachers and students communicate online to answer questions; students then use self-assessment exercises or study summaries to construct meaningful knowledge of what they have learned, and finally enter the display stage, where the study group can adopt various forms. Therefore, in the online self-study stage, the quality of the videos that students watch is particularly important. This requires teachers to organically combine video images, sounds, texts, and animations, transform the research background through information technology, and perfectly combine characters and sounds to improve teaching quality.

The binarization operation can be described by the following formula.

\[ \delta_B(k) = u_1(k) - \left[ u_1(k - 1)/u_1(k) \right] \times u_1(k) + u_2(k) - \left[ u_4(k)/u_4(k) \right] \]  

(1)

\[ \delta_B(k) \] is a separation index.

\[ \tau_f = R_{i+1} \tau_{n_i+1} + l_i \times \left( R_{i+1} \tau_f \right) + (l_i + h_i) \times f_i + n_i \]  

(2)

Among them, \( \tau \) is the learning index obtained by cutting. Suppose there is a set of data to fit an estimation function formula:

\[ h(x) = h_0(x) = \theta_0 + \theta_1 x_1 + \theta_2 x_2 + \cdots, \theta_n x_n \]  

(3)

This function can be reduced to the form of vector product.

2.2. Critical Reading

In our country, the research that combines classroom questioning with the cultivation of students' critical thinking ability is still relatively less involved, but scholars continue to join the research field. From a theoretical point of view, this research can make a certain contribution to the research of critical thinking in the field of foreign language research. From a practical point of view, this research first has a certain guiding significance for students' lives. The performance is that students have the ability to think critically, which means they have the ability to distinguish different information, and have the ability to analyze, evaluate, and criticize different information, to be able to think about problems in a detailed and all-round way, so as to analyze the knowledge of the text in depth in
learning, and to dig out the potential meaning behind the text, so as to improve the academic performance and benefit the future development of students. Secondly, for educators, it can enable educators to update their teaching concepts in time according to the dynamics of education, which will help teachers to a certain extent.

3. College English Critical Reading Experiment

3.1. Experimental Phase
In the experiment, in order to let students have an overall perception of the flipped classroom teaching mode, they are trained before the experiment. A class of third-year college students is used as the research object. During the experiment, the teaching mode under the new mode is used to teach. After the experiment, the test scores before and after the experimental class are compared.

3.2. Post-Test Phase
After the experiment, through reading test questions and questionnaires, we can understand whether the flipped classroom teaching model is helpful for students' performance improvement. And in terms of emotional attitude, acceptance, method feedback and effect evaluation, understand the students' attitudes after using the model before and after the experiment. Both the experimental class and the control class take a critical reading comprehension test and a regular reading comprehension test. Through questionnaires and interviews, the changes in critical reading ability and critical thinking ability of experimental class students are analyzed. The data obtained from the test is counted by Excel. Table 1 shows the reliability testing of English reading teaching.

| Survey scale     | Cronbach's Alpha | Number of items |
|------------------|------------------|-----------------|
| Emotional attitude | 0.905            | 5               |
| Method feedback  | 0.912            | 5               |
| Acceptance       | 0.909            | 5               |
| Evaluation       | 0.920            | 5               |
| Total table      | 0.942            | 20              |

4. Critical Reading of College English

4.1. English Critical Reading Results
The results of English critical reading are shown in Table 2. The results of the Critical Reading Comprehension Test show that the experimental class 1 is higher than the control class 2 in terms of average score, excellent rate and passing rate. The results of the conventional reading comprehension test show that the experimental class 1 is slightly higher than the control class 2 in three aspects: average score and excellent rate. The data shows that in the critical reading comprehension test, the experimental class scores significantly better than the control class. The highest average score of the experimental class is 45.6, and the pass rate is 74.5%. This shows that integrating critical reading into the high school English reading classroom can enable students to consciously analyze, reason, judge and evaluate reading articles. In addition, the regular reading comprehension test scores of the experimental class are also better than those of the control class, which shows that the use of critical reading in high school English classrooms can promote students' understanding of the text, enable students to better understand the author's ideas, and be more accurate Relevant information is extracted from the text, which fully meets and satisfies the current college entrance examination requirements for students' reading skills. In summary, the practical application of critical reading in high school English teaching can improve students' text reading ability, understand the reading material more deeply, and make analysis and reasoning on the text based on this, and form their own thoughts.
Table 2. English critical reading results

| Reading method   | Class                  | Number of people | Average score | Excellent rate | Passing rate |
|------------------|------------------------|-------------------|----------------|----------------|--------------|
| Critical reading | Experimental class (1) | 55                | 45.6           | 36.4%          | 74.5%        |
|                  | Control class (2)      | 56                | 32.4           | 0              | 28.6%        |
| Regular reading  | Experimental class (1) | 55                | 22.5           | 40%            | 69%          |
|                  | Control class (2)      | 56                | 20.9           | 30.3%          | 58.9%        |

4.2. Students' Problems in Critical English Reading Learning

Figure 1 shows the students' problems in critical reading learning in English. The students all said that critical reading of English is an important part, but they also believe that there are many factors in the process of reading comprehension that affect their overall understanding of the text. 8 out of 44 questionnaires mentioned too many new words, 6 mentioned slow reading speed due to too much vocabulary after entering junior high school, 12 mentioned that they did not master appropriate reading skills, 6 mentioned that they are not good at some reading genres, and 4 mentioned that they are doing word meaning guessing questions. At the time, it is difficult to guess the meaning of words through the text and context. 8 copies mentioned that some compound sentences and long and difficult sentences affect the overall understanding of the article. It can be seen from Figure 1 that the majority of students believe that the difficulty of critical reading in English is that they have not mastered appropriate reading skills. It can be seen that in the process of English critical reading learning, even if students can master a rich vocabulary, they do not have appropriate reading skills. The comparison of the test results before and after is to compare the test scores of the two tests before and after the teaching experiment. Both test questions are 11 questions that need to be answered with critical thinking. After comparing the accuracy of the two test items, we can judge whether the critical thinking of students has improved. According to the accuracy rate of each item in the test paper, compared with the accuracy rate of each item in the previous test, the accuracy rate of each item involving critical thinking in the 11 tests in the post test paper, such as reasoning judgment, speculative evaluation, etc., is different. Improved, each question has increased from about 30% and 40% in the previous test to about 60%. The combination of this result and the changes in classroom questioning in the teaching experiment can prove that targeted classroom questioning training can develop students' criticism. Sexual thinking ability can improve students' English reading performance.

**Figure 1. Students' problems in critical reading learning of English**
4.3. Reading Exercises in Class

The analysis results of reading exercises in class are shown in Figure 2. In response to the question of "study the content of reading in class ahead of time and conduct reading exercises in class", among the 44 materials collected, 40 answers are feasible and 4 answers are not feasible. Among the feasibility reasons, 16 mentioned that the learning content can be played repeatedly before class, which reduces the difficulty of learning in class, and 4 mentioned that this learning method can save time in class and there will be more time to do it. Practice; 12 mentioned that it can improve the ability of autonomous learning; 8 mentioned that this learning method can increase the interest of classroom learning; among the expressions of infeasible reasons, 2 said that problems encountered in the pre-class learning process cannot be Answer questions face-to-face like classroom teaching; one thinks that the process of self-study is a waste of time and is not as good as direct teaching by the teacher; one thinks that the classroom is only used for exercises, which will make some students lose interest in learning. It can be seen from Figure 2 that most students think that the flipped mode of reading teaching is feasible and hold a positive attitude, and students can realize the importance of self-learning ability training, interactive exercises in the classroom and pre-class preview. It is believed that the reasons for the infeasibility of flipped reading teaching also provide feasible suggestions for the implementation of the flip mode. Parents further understand the child's mastery. In addition, establish a mutual help group, where members cooperate to discuss and resolve doubts. At the same time, the answers of some students also reflect the current junior high school students' lack of self-learning awareness and the current situation in which junior high school English critical reading classes are mainly based on traditional teaching methods.

![Figure 2. Reading exercises in class](image)

5. Conclusion

Based on the above survey interviews and experimental research, it can be clearly seen that the use of critical reading can change the way students think and deal with problems. They will analyze the problem from multiple perspectives, communicate and discuss with others, and make decisions. Suppose, with a critical spirit to dialectically look at the opinions of others or oneself, instead of being a teacher, a person, or a self-confidence.

The mastery of critical thinking is very important for students. For the training of this ability, teachers should not only start from the teaching materials, but also combine with teaching skills. This research is based on the current status of high school students’ insufficient critical thinking ability and is cultivated through targeted classroom questioning training. The research found that the answers to high-cognition questions have a positive impact on the development of students’ critical thinking. This
chapter mainly introduces the main findings of the research, the teaching enlightenment from the teaching experiment and the shortcomings found after the research.

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