An Empirical Study on Computer Flip Classroom Teaching in College English Teaching

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Abstract. The flipped classroom works by allowing students to watch class videos at home and learn the basics of the topic first. When you return to school, you will learn how to apply these basic knowledge through various learning activities, such as group discussions and project studies, so that you can master the basic knowledge and learn how to apply it. Flipped classroom has a solid academic foundation. However, there is no denying that flipped classroom is still not popular, and many teachers and schools are still trying to explore. Especially for teachers who are just beginning to learn flipped classroom, it is psychologically and technically challenging to switch from traditional mode to flipped classroom mode all at once. Based on this, this paper uses experiments to explore the demonstration of flipped classroom teaching method in college English teaching.

Keywords: Microcourse, Flip Classroom, College English, Empirical Research

1. Introduction
As is known to all, Chinglish has always left many students in a passive learning state. Flipped classroom breaks the space and time limitation of learning, and students can choose the appropriate time and way to learn by themselves. It transforms the traditional "pre-class preview" of English without guidance into independent learning under the guidance of teachers (micro-course videos), with clearer learning objectives and more specific learning methods. In particular, the video content can be repeatedly watched, even if there are questions or need to review and consolidate after class can also be played at any time. Especially for the students with low English learning ability, it can not only reduce the difficulty of learning, but also enhance their confidence in learning English. To adapt a slogan: "Since there is a micro video, where will not click, my mother no longer have to worry about my study." Moreover, in a flipped classroom, the teacher gives the students the initiative to ask questions. Students ask questions according to their own questions in the pre-class learning, changing the passive answer to the active question. Sometimes the "questions" can be solved by mutual discussion among students without the teacher's inspiration. Students' self-learning consciousness and ability have been fully cultivated.

2. General information and research methods
In the semester teaching from September 2014 to January 2015, we selected two second-year undergraduate science classes of Chinese major with the same course teacher in a university and randomly divided them into experimental class and control class. In the experimental class, there were 21 male students and 29 female students. There were 22 male students and 30 female students in the control class, and there was no significant difference in student composition between the two classes. The teaching task of the two classes is "Reading Across Culture" in the comprehensive course of New Standard College English. The experimental class adopts the flipped classroom model based on micro-lesson. According to the teaching syllabus and the design of this experiment, we have formulated the teaching process table (see Table 1) [4], so as to play a macro-control role in the whole teaching experiment. We strictly follow the teaching plan of every two weeks to make micro-lessons. We also set up an independent section on the school's video learning platform to release micro-lessons one week before the teaching of this teaching content, which is only available for students in the experimental class to learn. Then 20 minutes are reserved for the implementation of the flipped classroom model in the current class teaching. The specific teaching materials, teaching contents and teaching progress of the control class are the same as those of the experimental class, and the traditional teaching mode is adopted.

**Table 1. Teaching Flow Chart of English Flip Classroom Mode Based on Microcourse**

| Specific teaching cases: |  
|-------------------------------|----------------------------------|

| Stage          | Specific time | Teaching activities for teachers | Student Learning Activities |
|----------------|---------------|----------------------------------|-----------------------------|
| Before class   | Week before class | Production and release of micro-class videos and self-learning task sheets | Learn micro-class video, complete learning tasks |
| In class       | 20 minutes    | Guide alone, arrange exercises   | Group discussion and review  |
| After class    | A week        | Platform exchange correction exercises | Upload Problem Platform |

As an example of "reading across culture" - "Resume across culture" in Unit 1 of Book 4 of New Standard College English, this essay mainly introduces the cultural differences in personal resume writing in several typical countries, such as Britain and the United States [1]. In view of this short passage, we have completed the design, implementation, consolidation and expansion of this part of the course according to the teaching process shown in figure 1. The specific teaching process is as follows.

### 2.1. Design and Production of Microcourse Video before Class

Two weeks prior to class in this part, we study the content of text and access to information, to produce a long lesson for 6 minutes and 36 seconds of video, mainly explained the Britain, the United States and other countries in the personal resume "to sell yourself" aspects of the cultural differences, as well as Spain, Italy, Germany, France and other countries in the form of resume design aspects of the difference. In addition, we also designed an independent learning task list for this micro-lesson, which mainly includes the goals to be achieved in this micro-lesson learning, suggestions on learning methods, learning tasks, and puzzles and suggestions that students need to fill in after watching the micro-lesson video, etc. Then, the members of our micro-class video production team were invited to watch the video and self-learning task list and give suggestions for modification [2]. On this basis, the author improved the video and task list and re-recorded the video. Finally, it will be released on the school's video teaching platform, and students will be given a week's preparation time for learning before class. At the same time, you can also communicate with the teacher individually or in groups through the network communication platform.

### 2.2. The implementation of the flipping classroom mode in class

This section mainly involves the specific implementation details of flipped classroom. First of all, on the basis of the self-learning task list, the students' task completion after watching the micro-lesson video was checked by asking questions (the questions were designed from the exercises in the first part of the
essay). The check results show that the micro-class video has done a good job of language input for students, so the language output of students has been significantly improved compared with the previous results. Then, we move on to the next part of the flipped classroom: a group discussion of extended questions. (1) How do you apply for a job in China? (2) What information would you include in your resume? (3) How important is the resume in the process of getting a job? (4) What do you think about the "hard sell" approach in the resume? At the end of the 10-minute discussion, representatives of each group are invited to make speeches on the issues. Meanwhile, other group members are allowed to supplement the speeches of the group, and then teachers will make comments in class. Finally, teachers and students discuss the puzzles and suggestions mentioned in the task list of students' independent learning, so as to cultivate students' critical thinking ability.

2.3. Design of after-school knowledge consolidation and expansion activities
According to the relationship between the textbook and the plate, students need to complete the last section of the unit, that is, "Guided writing -Writing a resume" reading and practice, and then write a resume in English for themselves [3]. And upload the school network exchange platform, teachers and students and student interaction and communication.

3. Evaluation of Teaching Effectiveness
It is mainly carried out in two forms: process assessment and summative assessment. Process-oriented assessment mainly takes the form of students' self-assessment, which is in the form of questionnaire on students' learning effect. Its content mainly includes indicators such as knowledge mastery, learning process and learning attitude. The final assessment takes the form of the final course and the ability level examination [4]. The examination form is a closed book examination, and the content of the examination is the teaching content of the semester.

3.1. Process assessment
Because the implementation time of each flipped micro-class is relatively short and the knowledge point is single, the test results are prone to errors if the test is taken immediately. Therefore, in order to test the learning effect of the flipped micro-class of students, we mainly use students' self-evaluation. Therefore, according to the previous teaching content and teaching process, and with reference to the "Students' English Competence Self-assessment/Mutual Assessment Form" in the "Teaching Requirements for College English Courses" (Trial), we designed a questionnaire for students' learning effect (see Table 1). The questionnaire contains three first-level indicators, such as knowledge mastery, learning process and learning attitude, and 10 second-level indicators. Using the Likert 5-level scale, the questionnaire designs five levels, which are good, good, average, poor and very poor, and the scores are 5, 4, 3, 2 and 1, respectively [5]. To ensure the validity of this questionnaire, we used SPSS 17. The reliability test was carried out by software 0, and the a value of this questionnaire was 0. 816. This result indicates that this questionnaire has high reliability.

According to the design of this study is based on micro class flip model to carry out the teaching after class, in time, after the completion of teaching task distribution and recovery of the questionnaire, the results of each questionnaire at the end of semester unified statistical analysis and the comparative analysis between each course, test the students' study effect, and comparing the teaching effect of every course [6].

3.2. Final evaluation
In order to examine the learning quality of students and the effect of the flipped classroom teaching model based on micro-lesson, we conducted the test in the form of final assessment at the end of the semester. For two classes of first year next semester and this semester "reading across indicates culture" link in the teaching content of comparative economics test, the test of the proposition and the examination paper evaluation are conducted by the same time other teacher, exam content based on the content of this teaching this semester, score full marks in the exam is 100 points, the test time is 100
min. All test results were obtained using SPSS17. 0 was analyzed, and t test was conducted for the pre-test and post-test scores, as well as the difference between individual pre-test and post-test scores, \( P < 0.05 \) indicates that the difference is significant [7].

3.3. A survey of students' acceptance of the flipped classroom model based on micro-class
After the end of this experiment, a questionnaire was issued to investigate the students' acceptance of the teaching method of flipping classroom based on micro-class. The questionnaire was mainly composed of five aspects (see Table 3) [8] and designed four grades of very recognition, general recognition and disapproval.

4. Results and Analysis

4.1. Test of students' learning effect per lesson
According to the above questionnaire, the results of the students' learning effect are shown in Table 2.

| Item                  | Represent                                                                 | Mean value | Standard deviation |
|-----------------------|---------------------------------------------------------------------------|------------|--------------------|
| Mastery of knowledge  | Understanding and Memory of Knowledge Points                               | 3.92       | 1.03               |
|                       | Application and Analysis of Knowledge Points                               | 3.78       | 0.78               |
|                       | Improved language communication skills                                      | 4.02       | 0.65               |
| Learning process      | Successful completion of the entire micro-course study                    | 3.66       | 1.02               |
|                       | Discuss the contents and tasks of the micro-class with the students        | 3.70       | 0.95               |
|                       | Self-evaluation of micro-class learning                                    | 3.90       | 0.86               |
| Attitude to learning  | Can actively learn micro-lessons                                           | 3.78       | 0.93               |
|                       | Can cultivate self-study habit                                            | 3.74       | 0.90               |
|                       | Develop a good interest in learning                                        | 4.06       | 0.68               |
|                       | Develop a good interest in learning                                        | 3.90       | 0.93               |

The statistical result shows that the average scores of each sub-item in the three dimensions of knowledge mastery, learning process and learning attitude of students are all greater than 3. 5. It shows that the flipped classroom model based on micro-lesson can promote students' mastery of knowledge, optimize students' learning process, and improve students' learning attitude [9]. In terms of students' language communication ability and learning interest, the score rate is greater than 4. 0. This data indicates that the flipped classroom model based on micro class can increase the chances of oral communication of students and create a more effective language communication environment for students, which is conducive to the improvement of students' oral ability; The organic combination of micro class and flipped class, two new things, also greatly arouse students' interest in learning English, which is conducive to improving students' intrinsic learning motivation in English learning.

4.2. Test of Students' Term Study Effect

| Achievement (average ± standard deviation) Number |
|--------------------------------------------------|
| Before measurement | After test | Variance in performance before and after |
|--------------------|------------|---------------------------------------|
| Control Class 52   | 76.61 ±5.48 | 78.40 ±5.56 | 1.79 ±2.11 |
| Experiment 50      | 75.30 ±6.36 | 82.04 ±5.81 | 6.74 ±2.46 |
| P value            | 0.265      | 0.002                               | 0.000      |

After the teaching of micro-class flipping mode, the difference between the two classes is significant, which shows that flipping classroom teaching is beneficial to the mastery of knowledge points.

4.3. A Survey of Students' Acceptance of Microcourse-based Flip Classroom
Students accept more than 80% of the flipping classroom based on micro-class.
Table 4. Students' Acceptance of Microcourse-based Flip Classroom Questionnaire

| Project                                                                 | Options (number/percentage) |
|-------------------------------------------------------------------------|-----------------------------|
| It is beneficial to the study and application of English knowledge points | 33 (66.00) 10 (20.00) 6 (12.00) 1 (2.00) |
| It is beneficial to the improvement of English learning efficiency       | 35 (70.00) 11 (22.00) 4 (8.00) 0 (0.00) |
| Stimulate interest in English learning                                  | 38 (76.00) 4 (8.00) 8 (16.00) 0 (0.00) |
| Can improve initiative and participation in English learning           | 34 (68.00) 9 (18.00) 5 (10.00) 2 (4.00) |
| It is beneficial to the improvement of English communication ability    | 32 (64.00) 15 (30.00) 2 (4.00) 1 (2.00) |

5. Conclusion

After all, English is a language subject. The multi-interaction learning mode of flipped classroom enables students to dare to speak more [10]. Unconsciously, students' oral ability and English comprehensive ability have been improved. Is Chinese difficult in school English? Why can we learn Chinese, but can't learn English? Mainly because we use less in daily life, dare not say the reason. After practice, flipped classroom has brought a new experience of English teaching. Students are more independent in learning English, teachers give more targeted guidance, students have more room for growth, and English class benefits are higher. In a nutshell: Flipped classroom makes English teaching more flexible.

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