FLIPPING THE COLLEGE ENGLISH TEST 6 (CET 6) WRITTING CLASS IN THE ERA OF BIG DATA

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Abstract

The era of big data has changed the traditional teacher-centered pedagogy. Micro lecture is a new teaching and learning form in a flipped class. Teachers record the lecture videos in advance and students watch the videos before the class. In class, teachers function as a facilitator to guide some student-centered discussion. However, class size, curriculum, students' cooperation and teachers' preparation are some barriers to implement the new teaching method. Fortunately, as a teaching assistant, I had the chance of designing my optional class—CET 6 writing class with 30 sophomores of similar English level (according to their CET 4 scores). The flipped classroom methodology is used with the help of Youku and Baidu Cloud. Students are separated into two groups randomly. The control group gets the traditional lecture while the test group gets flipped classroom methodology. After 6 weeks, students will be tested and interviewed to express their opinions on flipped classroom.

1 Introduction

According to previous research, a student's attention declines after the first 10 minutes of class, and although it may return at the end of a class, students can remember only about 20% of material presented during the lecture (Mary Beth Gilboy, Gina Pazzaglia, & Scott Heinerichs, 2015). The teaching is passive and inefficient. Nowadays, education is experiencing the trend of shifting from teacher-centered instruction mode to student-centered learning. Students are not expected to cram the theoretical material or to be filled with abstract knowledge any longer. Instead, students are expected to be able to apply the knowledge in practice. The purpose of learning is also witnessed the transition. The continuous and self-motivated search of knowledge is advocated. Among numerous learning modes, the flipped classroom is considered as an effective model to engage students in active learning and conducting high-rank thinking instead of receiving the knowledge passively.

The term "flipped classroom" represents the learning approach that exchanges the time used to deliver basic knowledge in class and the out-of-class time for applying the knowledge or doing homework; that is, teachers are able to engage students in more learning activities for applying the knowledge they have learned through practicing, doing projects, discussion, and solving problems in class (Missildine, Fountain, Summers, & Gosselin, 2013).

In order to achieve the goal, the flipped classroom leverages accessibility to advanced

technologies to support a blended learning approach. A typical flipped classroom approach provides students with access to online video lectures prior to in-class sessions so that students are prepared to participate in more interactive and higher-order activities such as problem solving, discussions, and debates. Before class, students learn basic knowledge by themselves by means of watching instructional videos, web-based tutorial. The purpose of study in this period is remembering and understanding. In class, there are some interactions between students and teachers. Teachers guide students to do practice, group discussion or answer students' specific questions. The following table indicates the difference between traditional teaching models and the flipped classroom from the perspective of teachers' roles, students' roles, instructional model, course content, the role of technology, and evaluation methods.

Table 1. The comparison between the traditional class and the flipped classroom

	Traditional class	**Flipped classroom**
Teacher	Administrating the class, imparting the knowledge	Facilitating the study, guiding the student
Student	Passive learners	Active learners
Instructional mode	Explaining the in-class knowledge and after-class practice	Before-class materials and in-class discussion
Course content	Imparting the knowledge	Exploring the question
Technology adopted in teaching	Presenting	The instruments for self-study, communication and discussion
How to evaluate students	Traditional paper test	Numerous methods

2 The working principle of the flipped classroom

The flipped classroom is defined as a pedagogical model in which the lecture and homework elements of course are reversed (Bergmann & Sams, 2012). Simply speaking, what has been traditionally done during class time is shifted to home activities and what has been traditionally done at home i.e. homework and projects are transferred to as class activities. Originally, the definition of the flipped classroom includes techniques used to deliver content outside. Now, it does not need to involve technology. The flipped classroom model of teaching focuses on moving content that fits in the lower levels of Bloom's Taxonomy outside class, reserving in-class time for the high rank levels. In a flipped classroom, the professor operates as a facilitator and works side by side with the students rather that performing as a "sage on the stage" (King, 1993).

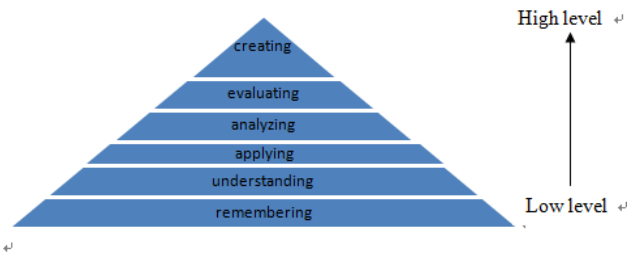

Fig. 1. Bloom's Taxonomy

The flipped classroom allows spending more time in class on the higher categories of

Bloom´s Taxonomy application, analysis, evaluation and creation rather than on the lower ones –memorizing and understanding, which are done outside the classroom.

According to the definition mentioned above, we can see that different from the procedural of traditional teaching model: imparting the knowledge in class and internalizing the knowledge after class. In class, some activities are guided by teachers to help students internalize the knowledge. Robert Talbert, the professor of Franklin University summarized the teaching model of the flipped classroom according to his own teaching experience. Chinese scholars Zhang Jinlei and Yang Ying summarized the teaching model of flipped classroom in China.

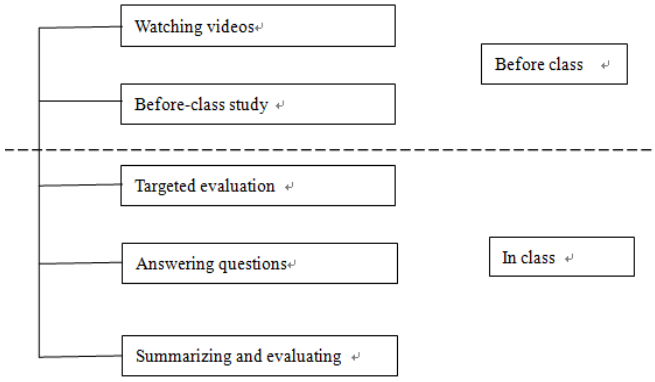

Fig. 2. The teaching model of the flipped classroom proposed by Robert Talbert

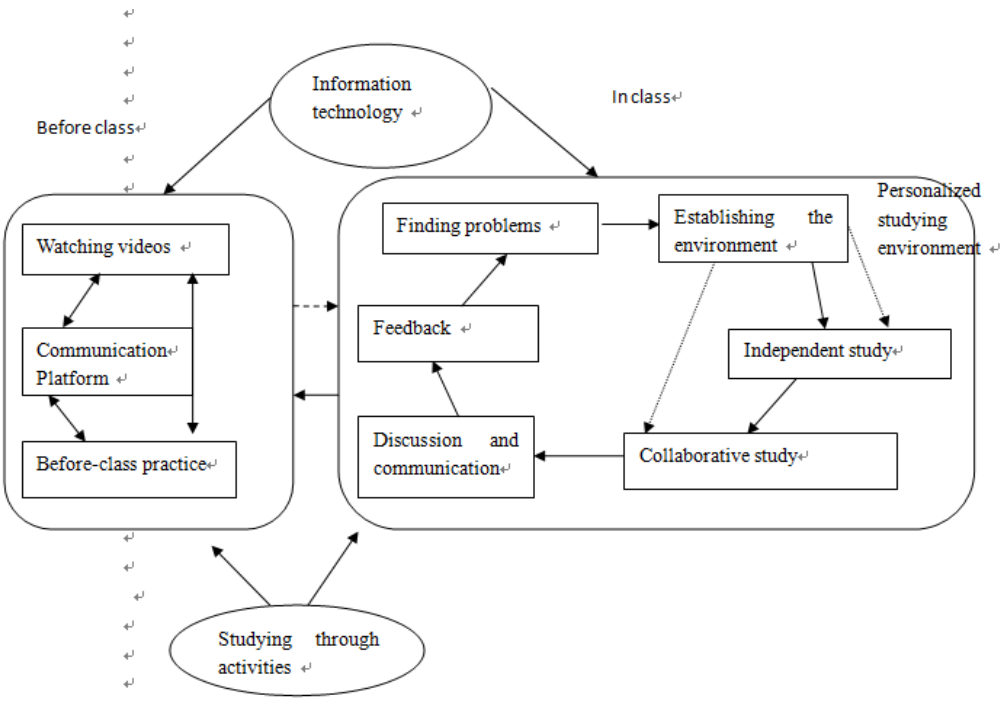

Fig. 3. The teaching model of the flipped classroom proposed by Zhang & Yang

3 The development of flipped classroom

Recently, more and more Chinese teachers and educators begin to pay attention to flipped classroom, especially the adoption of flipped classroom in language teaching. Many teachers and schools are trying to design the class according to their own circumstances. But the development of flipped classroom in China is still not systematic and is confronted with many difficulties. USA began to develop flipped classroom for a long time and we can learn from USA to develop the new pedagogy.

3.1 The development of flipped classroom in USA

The concept of flipped classroom was firstly proposed from USA. Therefore, in this part, we focus on the development in USA. Harvard professor Eric Mazur proposed the concept of peer instruction in 1990s. He found that computer-assisted teaching helped him guide and instruct students in learning process instead of imparting the knowledge. He believed it was the beginning to integrate computer into education. Computer would not replace teachers. Instead, they would be an important instrument to improve education quality (Mazur, 1991). In 1993, King issued a paper "From Sage on the Stage to Guide on the Side". A sage on the stage is an instructor who imparts knowledge on the student through lecture alone, whereas a guide on the side provides students with assistance and correction to explore the content independently or within a group (King, 1993). In this paper, King talked about the shortcomings and problems of traditional teaching model. In 2002, Maureen, Platt and Treglia issued a paper to discuss how to use flipped classroom model in Miami University to establish the inclusive learning environment. They used this model for five sections of an economics course and students' perceptions were positive (qtd in Wu, 2015). Salman Khan is the person who popularizes the idea of flipped classroom. In 2004, Khan recorded a video to tutor his nephew. His nephews liked the videos very much because they skip the knowledge they have already grasped and paid special attention to the knowledge they haven't understood. He established the Khan Academy in 2006 based on the teaching mode he used to tutor his nephews. Soon, Khan Academy became an education platform including teaching videos on numerous topics and a useful resources for teachers to implement flipped classroom. Students are instructed to watch course videos at home and do homework in schools based on the organized and fixed schedule. In 2007, two high school chemistry teachers of Woodland Park High School- Jonathan Bergmann and Aaron Sams initiated flipped classroom in the high school. They recorded the lectures to help absent students keep up with their classmates. They also used software and PowerPoint to record the lessons and uploaded them on YouTube. Not only the students who missed the class used the resources (Abeysekera & Dawson, 2015) but others watched the recorded videos. Unexpected changes occurred in their classroom activities: instead of focusing on teaching, they started observing students in smaller groups. In 2012, the Flipped Learning Network (FLN) was established to provide educators with knowledge, skills, and resources to successfully implement the flipped models. In 2014, a study conducted by FLN listed universities that adopted the flipped learning model in teaching: the University of British Columbia, the University of Memphis, the University of North Carolina, Chapel Hill, Texas A&M University, the Capital University, the Georgia Institute of Technology and Harvey Mudd College. Moreover, students were found not only scoring better in exams but were satisfied with the new model (Yarbro et al., 2014).

3.2 The development of flipped classroom in China

Although the title of flipped classroom is new in China, the similar teaching model with Chinese features can be found in many schools, such as “task-oriented self study” model in Jiangsu Mudu High School, “studying before teaching, doing homework in class” model in Jiangsu Yangsi High School and “self-study and present the results to classmates” model in Shaanxi. Models above-mentioned emphasized the self-study before teachers’ instruction.

Chongqing Jukui High School is the representative school in China to implement flipped classroom. The competition of student resource among high school in Chongqing is very fierce. The principle of Jukui believed that the only way to be competitive is increasing the school’s personalized features and developing students’ core competence. Therefore, flipped classroom is initiated in the school. After analyzing the development of flipped classroom in USA, the school established the platform for video watching and study management. Teachers upload some teaching videos and some practice (mainly include multiple choice, blanks filling and true or false) to the terminal. Students watch the video and finish the on-line practice when they are free and the results will be sent to their teachers. The lecture time is mainly used to discuss the difficult questions with the help of the teacher. According to the survey conducted by the school, 82.9% students prefer filliped classroom; 88% students believe their interests towards studying have increased; 88% students believe they can understand the knowledge better; 63% students think they finish their homework better, and 17% students complain about higher study pressure(Li Jingchuan, Wang Zhongling & Zhang Yujiang, 2012). Flipped classroom advocates the development of micro-lesson in China. Many schools organize the micro-lesson competition. Micro-lesson is mainly focused on certain points in a lecture and the common form of micro lesion is video less than 15 minutes.

Chinese education is featured with crowded classroom and huge population of students. Moreover, some existing educational resources for clipped classroom on western websites such as Youtube are restricted in China. Factors mentioned above exert negative influence on the implementation of flipped classroom in China.

4 Methodology

4.1 Research subject

Thirty sophomore students with similar CET 4 scores are subjects of this research. These 30 students are divided into two groups randomly. The control group is given the traditional lectures on writing while the experimental group is adopted flipped classroom.

4.2 Research method

The research is making an attempt to evaluate the efficiency of the flipped classroom technology in the process of teaching and learning the English language at the technical university. For achieving the aim of the research, quantitative analysis and qualitative analysis are combined. In quantitative part, t test is used to measure whether writing scores of two different methods show significant difference. In qualitative part, students are interviewed to express their opinions on flipped classroom pedagogy.

4.3 Research question

The research aims to answer two questions: 1. Is flipped classroom pedagogy useful in improving students' writing scores? 2. What are students' opinions on flipped classroom?

4.4 Research process

During the 6 experimental weeks, the control group has the writing lecture on each Friday morning 9-9:45 am, while the experimental group downloads the teaching video each Monday and we will discuss the questions and have group discussions on each Friday morning 10:-10:45 am. The outline for two classes is the same. Eight-week schedule are as follows. In the sixth week, 30 students are tested together to write a 150-words essay. Two experienced English professors are asked to grade 30 essays respectively without knowing the experimental purpose. Ultimately, 15 students from the control group will be interviewed one by one to talk about their feelings about the 6-week study.

Table 2. Schedule of the writing class

Week	Topic
1	How to write topic sentence?
2	How to write supporting details?
3	Make your arguments convincing
4	Making full use of the first paragraph.
5	How to write the conclusion part?
6	In-class writing test

5 Data and discussion

Firstly, we have conducted Pearson correlation coefficients analysis to test whether scores of two English teachers correlate with each other. The result is that two teachers' scores are significantly correlated at the 0.01 level. Then we calculated the average scores of two teachers and regarded it as the final score of the essay. Then, we conducted t test to see whether the scores of two groups are significantly different. Then we conduct the independent sample test, and the result indicates that scores of the control group and experimental group are significantly different. The concrete statistics are shown in the following tables. What's more, the average scores of experimental group is much higher than control group.

Table 3. The result of correlation

		Teacher A	Teacher B
Teacher A	Pearson correlation	1	.928
	Sig. (2-tailed)		.000
	N	30	30
Teacher B	Pearson correlation	.928	1
	Sig. (2-tailed)	.000	
	N	30	30

Table 4. The result of independent samples test

		t-test for Equality of Means			
		t	df	Sig. (2tailed)	Mean Difference
Score	Equal variances assumed	-5.116	28	.000	-3.5000
	Equal variances not assumed	-5.116	27.965	.000	-3.5000

Through the interview of 15 students from the experimental group, we know more about students' direct opinions on flipped classroom. There are eleven students supporting the flipped classroom. Six students express that they believe the flipped classroom pedagogy is helpful to improve their writing ability because they can control their own learning pace and they can review the learning materials anytime they need. However, in the traditional lecture, if they miss one language point, they cannot ask teachers to repeat. Three students like the collaboration with their classmates and the group discussion. They benefit a lot from their peers. Two students say compared with traditional lectures, the flipped classroom helps them realize they should be responsible for their learning and they become more self-motivated and active. Four students don't like flipped classroom. One student says he cannot control himself and he uses the computer to browse other websites. Two students believe they have more pressure which makes them uncomfortable. One student says that she feels unconnected with teachers and she is not used to this learning experience.

Although many advantages of flipped classroom have been proposed and discussed. We have to admit that the worries and problems that students have mentioned cannot be ignored. The development and flourish of flipped classroom in my school still faces many challenges. One of the challenges is concerned with extra workload that the teacher is designing the content of the electronic course. We have mentioned that in China, many foreign websites are blocked. Therefore, teachers don't have access to existing well-designed resources. In addition to normal workload at school, using electronic devices to record lectures, developing suitable materials and searching for supplementary resources require extra time and efforts. Secondly, as some students suggest, more access to websites means more distractions. Some students may use the time to brow other websites. How to guarantee students' efficiency needs our attention. Thirdly, our university has its own features. NPU is an elite university, which belongs to Chinese 985 Project. However, the advantage of our school is aeronautics, astronautic, marine technology, electronics, engineering and so on. Students' English ability is not commensurate with its high reputation. Students are not confident when they learn English. They are used to listening to teachers' lectures. Therefore, students may feel

uncomfortable one they feel unconnected with teachers, which will have negative influence on their learning. What is worse, without proper guidance or assistance, most students might show low self-regulated behaviours and little responsibility during the learning process.

6 Conclusions

Through this research, we can see flipped classroom pedagogy has many advantages. First of all, students benefit from the outside classroom events because they can review the learning materials and control their pace. In face-to-face classroom sessions, students have the opportunity to become more active and interactive through group activities rather than passively listening to lectures. Teachers can utilize class time to develop meaningful activities and stimulate students to engage in high-rank activities. Moreover, through flipped classroom, teachers are freed up to take student's individual need into consideration and organize more interactions between students and teachers. Ultimately, in the technology-integrated flipped classroom, students should be responsible for their own learning. Students are more self-directed and self-motivated because they need to plan when to watch the teaching videos and when to finish the tasks. Students have to learn to manage their time working with the electronic course, developing self-study and autonomous learning skills. Students' role in the learning process is changed, making them active participants of the educational process. The majority of students think highly of flipped classroom. However, we have to admit that some shortcomings also exist such as the heavy workload of teachers, the block of foreign resources, the fear and worries of students. We need to put more efforts to promote flipped classroom in university English teaching.

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