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Action Research on Flipped Classroom Model in Chinese Context of English Linguistics Teaching

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Abstract. The traditional teaching model of English linguistics is not suitable for the current English major in China. Teachers should create the suitable ones in their context. Under the guidance of action research, an empirical study was conducted to investigate the feasibility of flipped classroom model in teaching English linguistics with a view to constructing the model based on Mosoteach Management System and exploring efficient teaching strategies. Findings demonstrate that flipped classroom model helps promote students' learning abilities and comprehensive quality, and improve teaching effects as well. Modern teaching methods characterized by information technology puts forward a new requirement for teachers' growth in professional quality.

Keywords: Action research, Flipped classroom model, Mosoteach management system, English linguistics

1 Introduction

English linguistics aims to guide students to accumulate basic knowledge of linguistics and strengthen ability to analyze English phenomena. However, there are some defects in the teaching methods. Ju points out that teachers just teach what the book presents while students only have a superficial understanding of abstract theories ^[1]. Chen summarizes the limitations, like poor teaching methods, abstract theory, boring teaching content, low teaching efficiency, etc. ^[2] These problems propel researchers and teachers to consider how to improve the teaching quality.

Flipped classroom model (FCM thereafter), as a teaching model, helps students invert knowledge instruction and knowledge internalization. Students receive knowledge instruction by watching teaching video clips before the class while they internalize knowledge through participating in various teaching activities in the class ^[3]. Since the research focused on FCM ^[4-7] in the early 2010s, a large number of researchers have paid attention to flipped classroom in China. Some researchers discuss the essential features and application value of FCM ^[8, 9], while others conduct empirical research to explore whether it is feasible to apply FCM to the teaching of a course ^[10-12], and still others investigate teachers' teaching ability and meditative function in FCM ^[13, 14]. The previous studies have brought about a series of teaching reform in terms of teachers' role, teaching model, learning management, and so on. However, fewer studies have constructed FCM dynamically. An efficient FCM, in fact, cannot



be achieved overnight. Instead, it is improved step by step. Under the circumstances, action research is adopted to construct FCM in a dynamic way.

2 The Connotation of Action Research

Burns holds that action research takes a self-reflective, critical, and systematic approach to “intervene in a deliberate way in the problematic situation in order to bring about changes and, even better, improvements in practice.” It covers two cycles based on Kemmis and McTaggart ^[15,16], including Plan-Action-Observe-Reflect and Revised Plan-Action-Observe-Reflect. Wen ^[17] suggests that action research focuses on action with purpose, motivation, supervision and reflection.

Action research can guide a teacher to integrate teaching with research. It is not a simple cycle, but a dynamic terraced model. In each phase, it covers four steps, Problems – Plan – Action – Appraisal. After the completion of the tasks in the lower phase, the teacher restarts the research in the higher phase. Therefore, the author, under the guidance of action research, examined whether it was feasible to draw on FCM in teaching English linguistics based on MMS.

3 Methodology

3.1 Research Participants

Samples of 128 students were taken as research subjects. The author, a teacher researcher, taught four classes in different ways. Class 3 and Class 4, the experimental groups, learned English linguistics through FCM, while Class 1 and Class 2, the control groups, were learning the course in the teacher-centered model.

3.2 Teaching Arrangement

The teaching time, 32 periods in 16 weeks, could be divided into three phases. 10 periods were used in the first phase to discuss Introduction and Phonology. The second phase included 12 periods, learning Morphology and Syntax. 10 periods were allocated to the third phase, handling Semantics and Pragmatics. Students studied the other chapters by themselves due to time limitation.

3.3 Teaching Tools

The main teaching tool is Mosoteach Management System (MMS thereafter), a virtual learning environment that help the teacher provide students with media-rich resources and an online communication platform. The teacher may upload learning resources and instruction through both computer and smartphone. Students leave a data trail in MMS while they interact with others. Accordingly, it is used for sharing learning resources and exchanging learning experience in each experimental class.

3.4 Research Instrument

According to Questionnaire of Satisfaction in FCM ^[18], the author revised it to adapt to the real teaching environment. It contains 52 items, covering preview, online communication, classroom teaching, learning reflection and overall assessment of the course. Each item was designed based on Likert scale, including “Totally Disagree” (1 point), “Disagree” (2 points), “Neutral” (3 points), “Agree” (4 points) and “Totally Agree” (5 points). At the end of each phase, the author adopted the questionnaire to investigate the effects of FCM in the experimental groups.

KMO (Kaiser-Meyer-Olkin) and Bartlett test of sphericity were adopted to test validity of the questionnaire. Running Factor Analysis in SPSS 22.0 revealed that KMO=0.895>0.8 and Bartlett test of sphericity was significant ($p=0.000<0.05$). Therefore, the questionnaire had higher validity. Cronbach’s coefficients can calculate the reliability of the questionnaire. It was 0.864>0.8, proving that the items were closely related and the questionnaire had higher reliability.

3.5 Research Questions

Three questions would be explored. How could FCM be constructed in English linguistics teaching in MMS? What teaching strategies could be taken to achieve teaching objectives? What were the advantages of the adoption of FCM?

4 Action Research on FCM of English Linguistics

In each phase, the author conducted action research step by step: identifying teaching problems, proposing a plan, implementing the plan and evaluating the effects.

4.1 The First Phase

The first phase aimed to help students find proper learning methods and create a harmonious learning atmosphere.

4.1.1 Identifying Teaching Problems. The author examined the problems in teaching English linguistics from literature and summarized the following ones. Teaching contents were so profound that students felt it was strenuous to learn the course. Students failed to play an active role in the teacher-centered classroom. Teaching effects were not satisfactory, for students found it arduous to grasp the basic theories, let alone explain language phenomena according to a theory. Besides, summative assessment was mainly adopted.

4.1.2 Proposing a Plan. The author took some strategies to cope with the problems. He updated syllabus, introduced FCM to increase students' learning enthusiasm, presented students with more familiar and interesting topics to attract students' attention, and combine summative assessment and formative assessment. The last measure will be discussed in another paper.

4.1.3 Implementing the Plan. First, the author updated syllabus. Three days before a class, he prepared a teaching plan and uploaded video clips to MMS. Students previewed the teaching materials and watched video clips so that they could know focal points and difficult points of the upcoming class. They could have online discussion to solve the problems or recorded the problems in MMS. In the classroom, the author organized students to discuss problems or topics, and then made a comment and summary. After the class, students had online discussion and finished written homework and submitted learning reflection. Accordingly, a preliminary version of FCM could be represented in Fig. 1.

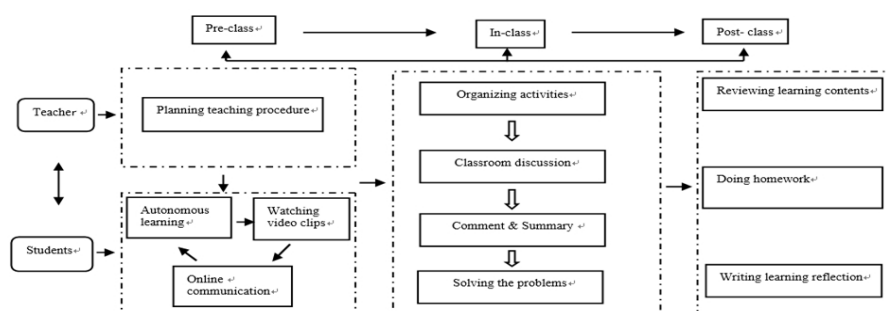


Fig. 1 FCM Based on MMS (Preliminary Version)

4.1.4 Evaluating the Effects. At the end of the first phase, the author conducted the first survey in the experimental groups and collected students' satisfaction of the main steps in FCM, including preview, online communication, classroom teaching, learning reflection, homework and overall impression on the course. The results were reflected in Table 1.

Table 1 Students' satisfaction of the main steps in FCM

Items	Preview	Online Communication	Classroom Teaching	Learning Reflection	Homework	Overall Impression
Percent	72.2	73.4	78.5	74.3	83.8	76.7

Students had the lowest satisfaction of preview effects. Some students wrote down their experience in learning reflection: "I was very busy, so I failed to preview the teaching contents before the class."; "I couldn't understand so many technical terms."

Students' satisfaction of online communication was only 73.4%. They recorded that "We didn't have the same learning time to discuss learning problems, so some classmates were not active in online communication."

Some students thought that "Learning reflection is a heavy burden". Therefore, only 74.3% of the students were willing to fulfill the task.

78.5% of the students were satisfied with teaching effects. They reflected that "we did not know what topics we could discuss" and that "limited teaching time restricted the process of discussion." Therefore, only 76.7% of the students showed satisfaction with the effects of FCM.

4.2 The Second Phase

Action research on FCM in the second phase aimed to improve teaching steps and heighten students' satisfaction of FCM.

4.2.1 Identifying Teaching Problems. According to students' learning reflection, students recognized the role of FCP, but four problems were easily found in the first phase.

It was difficult to supervise students' preparation before the class. Students could not follow the teaching, if they failed to preview the teaching contents. Learning effects depend on the design of teaching procedure ^[19]. Hence some strategies should be taken to supervise whether students completed learning tasks before the class.

Online communication lacked substantial contents. Students had different learning time. When one student raised a question in MMS, the others could not offer timely feedback for they were busy with other things. This phenomenon prevented students from playing an active role in online communication.

Some students felt it a burden to write learning reflection. The main reason lay in that students did not comprehend its significance. Consequently, some students just muddled through somehow. Discussion in the classroom was not active. Teaching time was limited, so the discussion could not engage as many students as possible.

4.2.2 Proposing a Plan. The author adopted the following strategies to cope with the problems.

Students were required to offer oral presentation in the class. Students in each class were divided into 4 smaller groups with a group leader. Before the class, the author assigned learning tasks to each small group. After previewing the teaching contents and watching video clips, the group leader organized the classmates to prepare for the learning tasks. In the class, each member, in turn, delivered an oral presentation on a particular topic and then defended orally against the questions raised by the teacher or other students. According to the performance of presentation, the author recorded a grade in MMS. In the end, the author made a comment or summary to emphasize some conclusions. The oral presentation required that all the students should make a full preparation before the class; otherwise they would feel embarrassed.

Student reached a compromise on the fixed time of online communication. Each group was required to have online communication twice per week.

The author explained the importance of learning reflection. It not only reviewed the past learning activities, but also offered the suggestions for future improvement.

The author presented the relevant questions in video clips. In the first phase, learning questions

were not shown in video clips. Therefore, the discussion on some topics could not thoroughly be held in the class. By contrast, in the second phase, some questions were added in every section to remind students that they could use them as a self-examination practice and as the guiding topic for discussion. The questions functioned as a bridge between online communication and classroom discussion.

The author guided students to learn more learning materials from other sources, thus broadening their fields of vision and improving their performance in the class.

4.2.3 Implementing the Plan. The teaching preparation included uploading video clips and assigning learning tasks to each small group. After autonomous learning and watching video clips, students considered whether they understood learning questions in video clips. Then group leaders organized group members to discuss the questions online and assigned presentation topic to each member. In the class, students presented their understanding of a certain topic in a task-driven model. The teacher made a comment on their performance. After the class, students conducted online communication and finished written assignment; they found more relevant materials from different channels to deepen the understanding; they wrote down their reflection on learning performance, including achievement, defects, and suggestions for improvement. The revised FCM is presented in Fig. 2.

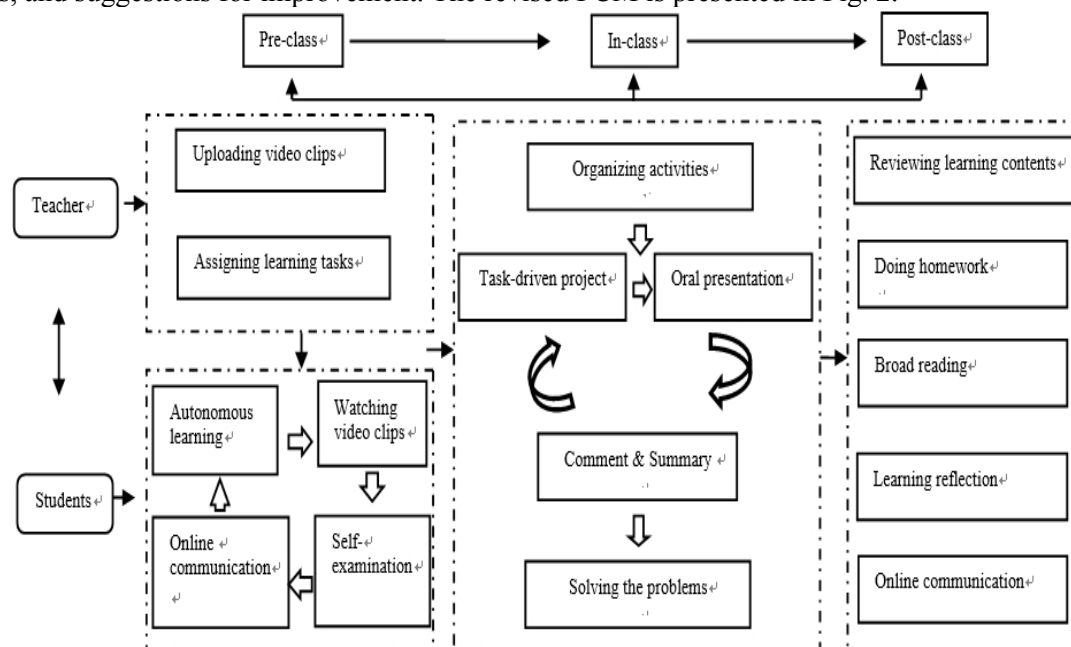


Fig. 2 FCM Based on MMS (Revised Version)

4.2.4 Evaluating the Effects. The author investigated students' satisfaction of FCM again and obtained the results in Table 2.

Table 2 Students' satisfaction of the main steps in FCM

Items	Preview	Online Communication	Classroom Teaching	Learning Reflection	Homework	Overall Impression
Percent	82.3	84.3	85.6	83.8	88.0	86.7

In this phase, students increased their satisfaction. Oral presentation and online communication at fixed time facilitated their learning initiative. Explanation of the importance of learning reflection enabled students to complete the task more meticulously. Moreover, some questions were added to each section in video clips, offering students more time to think about them and making students improve the performance in the class. However, satisfaction of preview was still at the lowest degree. They revealed that "When we could not get answers in time, we felt frustrated", and that they "are not strict with" themselves. If the teacher failed to notice the problems, learning effects would be

negatively influenced.

4.3 The Third Phase

Students in the third phase were guided to find effective learning methods.

4.3.1 Identifying Teaching Problems. In the second phase, students had two learning problems. After autonomous learning and online communication, some problems were not solved in due course. Naturally some students did not spend enough time in autonomous learning and did not have proper participation in online communication.

4.3.2 Proposing a Plan. In the third phase, the author adopted the following measures.

The learning problems were the key points. If students received a timely feedback, they would heighten self-confidence and actively participate in group discussion. Therefore, the author required the group leaders to collect the learning problems and satisfied their learning needs.

The author added individualized guiding step to handle the inactive phenomenon. he explained the role of online communication in accumulating knowledge, chose a student who was active in online communication as an example, encouraged students to persevere in online communication or submit learning reflection in time, and stipulated that the teacher would offer additional experience points to those who had better performance in learning procedure.

4.3.3 Implementing the Plan. In the third phase, the author adopted two measures to improve FCM.

The author helped students deal with the learning problems. The author offered a definite answer to the individual problem as a timely feedback while he collected common ones before the class and guided students to solve them in the class.

While students were giving oral presentations in the class, the teacher offered them individualized guidance, mentioning both strong points and defects. Besides, accumulation of experience points served as an external motivation to encourage students to work harder than before.

The two measures obeyed “student-based principle”, showing respect for individual difference. Consequently, FCP could be further improved as Fig. 3.

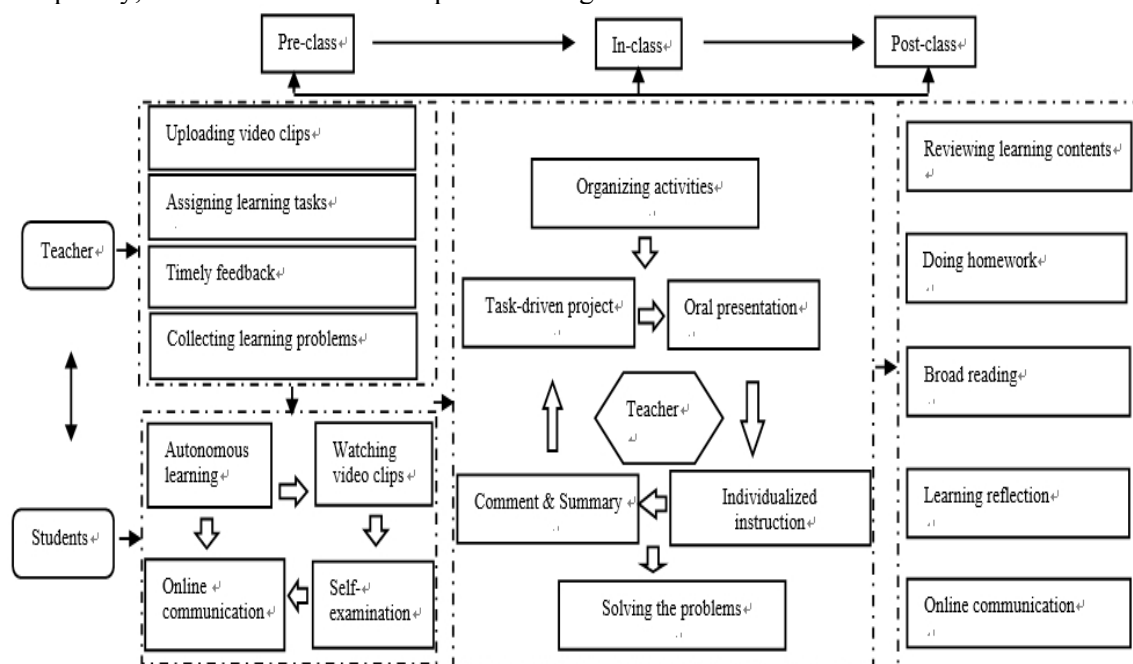


Fig. 3 FCM Based on MMS (Extended Version)

4.3.4 *Evaluating the Effects*. The author obtained the following results from the third survey in Table 3.

Table 3 Students' satisfaction of the main steps in FCM

Items	Preview	Online Communication	Classroom Teaching	Learning Reflection	Homework	Overall Impression
Percent	88.3	91.3	91.6	89.8	91.0	92.7

Table 3 indicated that students were more satisfied with FCM in the third phase than it in the second phase due to timely response and individualized instruction.

5 Results of the Research

5.1 Pre-test Results

Before the first period, the grades of the course of Advanced English were taken to investigate students' written English proficiency. The author employed SPSS 22.0 to do Independent-Samples T Test and obtained the following results.

Table 4 Pre-test Results of the Control Groups and the Experimental Groups

Class	Number	Mean	Std.Deviation	Std.Error Mean	t	df	Sig.(2-tailed)
Class 1.2	61	74.8852	8.44610	1.08141	-0.962	118	0.338
Class 3.4	59	76.33904	8.09344	1.05368			

In Table 4, mean of the advanced English for the control groups, Class 1 and Class 2, were 74.8852, while that for the experimental groups, Class 3 and Class 4, were 76.33904. According to Independent-Samples T Test, significance level of pre-test result was $0.338 > 0.05$. Therefore, under the condition of 95% confidence interval of the difference, there was no significant difference in students' written English proficiency. This fact proved that the students in the four classes had the similar English basis, i.e. the precondition of the teaching experiment was valid.

5.2 Post-test Results

The author conducted the empirical teaching experiment in English linguistics. In one semester, the traditional teacher-centered teaching model was adopted in Class 1 and Class 2, while FCP was employed in Class 3 and Class 4 simultaneously. The scores of the final examination were used as post-test results, shown in Table 5.

Table 5 Post-test Results of the Control Groups and the Experimental Groups

Class	Number	Mean	Std. Deviation	Std. Error Mean	t	df	Sig.(2-tailed)
Class 1, 2	61	75.7049	8.51537	1.09028	-3.503	118	0.001
Class 3.4	59	80.7458	7.16455	0.93275			

In Table 5, mean of Class 1 and Class 2 were 75.7049, while that of Class 3 and Class 4 were 80.7458. According to Independent-Samples T Test, significance level of post-test result was $0.001 < 0.05$. Therefore, under the condition of 95% confidence interval of the difference, there was significant difference between the traditional teacher-centered teaching model and learning-centered FCP.

6 Interpretation

6.1 The Construction of FCM of English Linguistics

As Figure 3 shows, FCM of English linguistics is divided into three phases. Before the class, the teacher produces media-rich resources, assigns learning tasks, offers students timely feedbacks and collects learning problems, while students have autonomous learning, watch video clips, do self-examination and hold online communication. In the class, the teacher organizes various teaching

activities. Students give oral presentation on particular topics in turn. Then the teacher guides students to remove the learning obstacles, concludes a section by offering comment and summary and restarts the learning of the next section. After the class, students review the learning content in the past class, do homework, have broad reading, write learning reflection and hold online communication again, etc. As a result, students consolidate learning contents, form a positive learning habit and lay a solid foundation for the next class.

6.2 *The Potential Teaching Strategies in FCM*

The essence of FCM is a return to the logic start of teaching activity – students' learning ^[9]. The teacher can adopt learning-centered teaching strategies, like teaching design, learning needs, timely feedback, cooperative learning, learning ability, etc.

Teaching design functions as the means to realize teaching objectives. The teacher may design teaching activities according to Zone of Proximal Development proposed by Vygotsky ^[20], and base new knowledge on the old cognition system.

The teacher should pay attention to students' learning needs to maintain their learning interest. Before the class, the teacher collects the learning problems. In the class, the teacher leads students to solve the problems. Satisfaction of learning needs will enable students to keep long-term learning interest.

Timely feedback is a respect for students' personality and a support for learning. Before the class, students may be puzzled by some problems. The teacher's timely feedback will become encouragement and support. In the class, the teacher helps students to solve the problems and build up self-confidence and internal motivation.

Cooperative learning can create a harmonious learning atmosphere. Both extroverted and introverted students can share learning experience and resources in a learning group. A student's oral presentation usually reflects the collective wisdom.

Cultivation of learning ability is a kernel objective of FCM. Students will benefit a lot from the sustainable learning ability.

6.3 *The Advantages of FCM*

The advantages of FCM are not the application of technology, but the improvement of the whole teaching model propelled by the development of technology ^[10]. They are reflected in students' learning ability, comprehensive quality, teaching effects, etc.

Individualized learning and instruction can promote students' learning ability. Before the class, students take the initiative to explore knowledge at their own pace. In the class, students present their understanding. If they have misunderstanding, the teacher offers them timely individual instruction. After the class, students record what they have learned in learning reflection. The teacher may pick out the mistakes to offer more individual instruction.

The learning-centered teaching procedure can help students promote their comprehensive quality. Students develop the preliminary academic research ability in preparing the presentation. They practice oral English in delivering the presentation. In cooperative learning, students enhance interpersonal communication and cooperative ability. Students also improve self-reflective ability in learning reflection.

FCM brings about better teaching effects. The experimental groups had higher grades than the control groups, and there was significant result between FCM and the traditional teaching model.

7 **Conclusion**

FCM has brought about development power for teaching reform. The author, under the guidance of action research, intended to build FCM in a dynamic way based on MMS in English linguistics teaching and took some strategies to realize the teaching objectives. It reaches the conclusion that FCM can improve the teaching effects. The main cause lies in the fact that the teacher-centered teaching pattern is transferred into learning-centered teaching pattern, absorbing learners' attention

and interest, optimizing their learning methods, enhancing language proficiency and improving learning effects. FCM also requires that teachers should possess higher professional dedication and qualification, and grasp teaching technology.

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