An Empirical Study on Optimizing Flipped Classroom of Advanced English Course: from Learner's Perspective

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Abstract. The exploration of flipping classroom is in full swing, and the reform has come to the stage of optimization, that is, to reflect on the effectiveness of the classroom. The paper conducted an empirical study on whether the flipping classroom of advanced English course has achieved marked improvement in respect of the learners' comprehensive competence compared with that in traditional classrooms. Results indicated that flipped classroom contributed to the active attitude of the learners and the enhancement of their language competence, communication skills, and other competences, especially in the second round of reform. Based on the feedback from the learners in the first round of teaching and learning, some optimization measures in view of input materials, evaluation means, and ways of activities have been taken to give full play to learners' initiative and enthusiasm, and thus to improve the overall competence of the learners.

Introduction

Flipping classroom began in 2007. The concept, together with micro-courses, MOOCs and blended learning, has become the research focus of media, academic conferences and periodicals both at home and abroad in recent years. The research topics include the paradigm research, the feasibility and the application of the teaching model and the comparison between flipped and traditional classroom. The perspectives of its research have changed in varied aspects: In terms of research focus and goal, it has transited from the 1.0 era of "video micro-lesson + flipping classroom", which is mainly based on knowledge and skill training, to the 2.0 era of focusing on critical thinking and innovative literacy training. The goal of flipping classroom has shifted from the test-orientation to achievement-orientation. In view of research content, more studies have focused on the reflection and optimization of the classroom, not discussing why or what to flip but on how well it has done. In terms of breadth and depth of research, it has begun to probe into the pain points and the toughest problems to solve in the flipping classroom: how to quantify and measure learners' participation, how to solve the contradiction between the objectivity of formative evaluation and the tedious scoring, how to improve the effectiveness of the learners' autonomous study and the like. Founded in 2010, the Flipping Learning Alliance (flippedclassroom.org) has 29,512 registered members and 101 groups such as the Flipping Learning Research Group and the University Flipping Research Group where members discuss the problems they encounter during the teaching. The more heated discussion is on the effectiveness of flipping classroom such as whether students learn in a more active way in the flipping classroom, which forms of flipping activities contribute to more effective learning? Based on the two-round flipping classroom reform in Advanced English course, this essay conducts a questionnaire survey and finds out the answers to the following questions: 1. What changes will the optimization reform bring to learners in terms of learning input, learning attitude, learning ability, learning breadth and depth? (Questionnaire) 2. How satisfied are the learners with the curriculum and lecturers? (Questionnaire) 3. What are the positive and negative feedbacks on the effectiveness of the two rounds of reform respectively? (Questionnaire--open questions) 4. What are the differences between learners' final exam scores and unit quiz scores in the two rounds of reform?

The Background of Advanced English Optimization Reform

Foreign language teaching methods have gone through various stages, such as situational

teaching, communicative teaching, task-based teaching, content-based teaching, and the learner-centered teaching method has received more concern in recent years. The main goal of Advanced English course is to promote learners' effective output which coincides with the flipping classroom model in improving the learners' learning initiative and effectiveness in a free and interactive way. The current research on flipping classroom tends to be more empirical. The findings of these empirical studies can be classified into positive, negative and neutral. Most researchers (Berrett 2012; Day & Foley 2006; Papadopoulos & Roman 2010; Warter-Perez & Dong 2012; Strayer 2012; Barkley2015) have proved the effectiveness of flipping the classroom in enhancing the learners' learning competence. Some studies (Findlay-Thompson & Mombourquette 2014; Jensen 2015; Webb2016) have found that there was no significant difference in learning results between flipping classes and other teaching models. Murphree (2014) argued that although the scores were improved, there was no statistical significance. Tian (2016) conducted the classroom observation, a questionnaire survey and an in-depth interview in more than 100 schools in 20 prefectures and cities in China and found that the flipping program has achieved positive results in arousing interest in learning, cultivating thinking and enhancing the ability of cooperation, but it also faces some difficulties from teachers and students. Further efforts should be made in the construction of high-quality resources, the optimization of learning platforms, and the shift of the focus of teaching evaluation to learning evaluation. Miao and Wang (2015) conducted a questionnaire survey on the status quo of flipping classroom in Chinese universities. The analysis of flipping classroom based on learner feedback is helpful to deepen the reform of Advanced English course and enlightens other courses of similar kind.

Research Design

This study adopts experimental research and questionnaire investigation to learn about what changes the reforms have brought about since the first round of flipping classroom reform and the second round of flipping optimization reform have been carried out in the Advanced English courses for juniors of Grade 2012 and 2013. Since only one class of a grade was taken by the same teacher, the experimental class and the control class were not set up in the parallel class of the same grade but in the two classes from both grades. While a control experiment was conducted on the learners' academic achievements, a survey study was conducted in the two classes, in the same period. The samples collected for effectiveness analysis in the experimental research included the final exam scores of the learners in the sixth semester (Advanced English II) and the scores of each unit quiz in that semester, and the differences in the SPSS22.0 version were compared and analyzed. The purpose of the questionnaire is to evaluate the improvement of the learners' abilities, as well as the changes of their learning attitude reflected in the questionnaire. The questionnaire is divided into two parts: quantitative data and open questions and answers. The quantitative data were collected with the liker five-level scale (5 = very agreeable / highly agreed / highly / highly assigned) (5 = very much agreed / 3 = basically agreed / disagreed / serious / disagreed). The answers were evaluated from low to high by 1/ 2/ 3/ 4/ 5. The quantitative data of the two questionnaires will show the changes of the learners in their learning input, learning attitude, learning ability, learning breadth and depth, as well as their evaluation of the curriculum and the teacher. The other data collected from the answers to the open questions can be used to know the hours that the learners spent on the course study as well as the opportunities they communicate in English in the flipped classroom. The key words will be extracted from the open answers to know about the learners' attitudes or suggestions. In this way, two cloud images will be made respectively based on the learners' positive and negative feedbacks, from which optimization strategies will be put forward for the next round of course teaching. Aspects of optimization include the learner participation, team cooperation quality, means of evaluation and the learners' learning efficiency.

Data Analysis and Findings of the Experimental Study

The scores of each unit quiz of the two classes are compared and analyzed by SPSS22.0 version,

and then the final exam results of the two classes are analyzed in the same way. The results showed that the difference coefficients of unit quiz scores and final exam scores between Class 4 of Grade2012 and Class 2 of Grade2013 were 0.025 (table 1) and 0.145 (table 2), respectively. The coefficient of comparison of unit quiz scores was less than 0.05, and the difference coefficient between Class 4 Year2012 and Class 2 Grade2013 was 0.025 (table 1) and 0.145 (table 2), respectively. The results showed that there was a significant difference between the two groups of comparative data. The comparative coefficient of final exam scores is 0.145, higher than 0.05, indicating that there is no significant difference between the two classes in final scores.

Table 1. Comparison of the Unit Quiz Scores

average	Standard deviation	Average standard error	95%confidence intervals for variance		T	df	significance
			Lower limit	Upper limit			
-7.31250	17.51274	3.09584	-13.62652	.99848	-2.362	31	.025

Table 2. Comparison of the Final Exam Scores

average	Standard deviation	Average standard error	95%confidence intervals for variance		T	df	significance
			Lower limit	Upper limit			
-4.34375	16.43876	2.90599	-10.27056	1.58306	-1.495	31	.145

From Table 1, data show that academic achievements of the second round of teaching are better than those of the first round, indicating the learners' improvement in vocabulary, grammar, reading comprehension and other language skills after the implementation of optimization reform of the course. The progress in listening part is dramatic in that the average score of this part in Class 2 Grade2013 has increased by 40% than that of Class 4 Grade2012. This can attribute to the listening skill trainings during the second round of teaching.

Statistically, Table 2 has shown no significant difference between the academic achievements of the two classes in the final exam. However other statistics like the average score and the pass rate vary a lot between the two classes. The average score of Class2 Grade2012 is 75, 10 scores higher than that of Class4 Grade2013. The score in listening part is remarkably higher than the previous grade, which is the same as that in unit quizzes. Another evidence of showing the effectiveness of the optimization reform in academic achievements is that the pass rates of TEM4 when the learners first participated in the exam were more or less the same but the rate was 5% higher in the make-up exam when the learners participated in the exam in their junior year.

Data Analysis and Findings of the Survey Study

The questionnaire is divided into two parts: quantitative data and open questions- and-answers. Quantitative data were collected from learners in five aspects: learning input, learning attitude, learning ability, learning breadth and depth, as well as the evaluation of curriculum and teacher. Multiple choice questions were used to collect information about the time spent on autonomous study, the opportunities of communicating in English, the learners' favorite activity forms and evaluation methods. Open questions collect learners' attitudes, views and suggestions on flipping classroom. At the end of the semester, questionnaires were distributed to two classes (32 students in Class2 Grade 2012 and 34 students in Class4 Grade2013), and 32 valid questionnaires in each grade were retrieved. The comparative analysis of the questionnaires was made from 21 indicators and 5 dimensions to see the changes of learners' learning input, attitude, and ability during the two rounds of reform. The 5 multiple-choice questions collected learners' information on autonomous learning time, oral expression opportunities and their favorite activities.

According to the investigation of the learners' evaluation of the flipping teaching model, their learning experience and their satisfaction of the course and teachers (Questions1, 2, 3), learners in

both classes are satisfied with these three aspects, and those in the optimization reform are more satisfied, which to some extent reflects the effectiveness of flipping optimization. As for the satisfaction of the flipping model, the results of the questionnaire indicate that 3.6% of the learners disapprove of the flipping model, 32.1% of the learners basically agree with the flipping model and 64.3% of the learners agree to a large extent with the model. In the second round of flipping reform, the model has been unanimously affirmed. It shows that the flipping classroom model has been recognized by learners in Advanced English course, especially by the learners in the second round of reform. On the satisfaction of learning experience, 3.6% of the learners in the first round of flipping reform were dissatisfied with their own learning experience, 25% were basically satisfied, and 35.7% were satisfied to a great extent. In the optimization reform, 93.8% of the learners were satisfied to a large extent with the experience, indicating that in the second round of flipping reform, learners have a more pleasant experience in the flipping classroom. The overall satisfaction rates towards the course and the teacher were both extremely high, exceeding 80%.

Questions 4 to 8 are about how much time learners devote to learning beyond class and how they allot time for various tasks. Before class, learners mainly complete the following tasks: watching videos and participating in online interactive discussions and previewing the text. After class, they search information and review what they have learnt in class. They prepare for unit quiz and complete such tasks as theme in-depth discussion and essay writing. Compared with traditional teaching, online learning in flipping classroom can promote learners to invest more time in extracurricular learning. This conclusion is verified by the results of the questionnaire. The results showed that the two classes had the same trend of autonomous learning time input before and after flipping: Before flipping reform, 89% of the learners spent less than an hour in study before and after class, but in the first flipping reform the rate decreased to 35%, and in the second round of optimization reform, less than 20% of students spent such little time in study. Instead, in the two rounds of flipping reforms, more than half of the learners spent two or more hours in study and 25% of them invested more than 3 hours in study. The questionnaire also set 5 questions about learners' learning attitude: I can finish the pre-class task actively according to the "flipping classroom task list"; in the flipping class, I can actively participate in group activities and classroom discussions; after class, I will actively prepare for unit tests, consolidate what I have learned. The results show that 95% of the learners hold positive view on the flipping learning experience. Also, the learners' enthusiasm and initiative have been fully motivated in the flipped classroom. The learners can feel the pressure but also gain more motivation. They can persist and make great efforts to change although they encounter difficulties. The positive learning attitude is the premise and guarantee for the improvement of learners' abilities.

Questions 9 to 10 are about the learners' favorite classroom activities and means of evaluation. The learners are required to rank the flipping classroom activities they favor most. The top three activities that Class 4 Grade 2012 favors are games, situational performances, and group presentations. The top three of Class 2 Grade 2013 are situational performance, theme discussion, and group presentations. The activities that neither class likes are translation contests and debates. One reason is that translation is somewhat boring compared with other forms of activities and debates are a bit too difficult for the undergraduates whose English is not good enough for free communication. As for the means of evaluation, most learners prefer the reformed evaluation ways, namely, Teacher's scoring + Peer Assessment (Intra+ Inter-group assessment). The least expected form of evaluation is "intra-group peer assessment". The real-time online evaluation as a new way of assessment gains an advantage over the other ways in saving time and convenience.

Question 11 is about the proportion of flipping that the learners find most effective. The result shows that a 50% to 70% is the proper percentage for them. The combination of flipped and traditional way is more popular with the learners.

Questions 12 to 14 are about the gains and suggestions for improvement in the flipped learning of the course (especially the items not listed in the questionnaire above)? Extract key words from the feedbacks to create cloud images. The first cloud image (See Figure 1) was made by extracting the key words from the positive answers of the questionnaires of the first round of flipping reform. The

highlighted key words “interesting” and “confident” show that the learners feel great fun and become more confident in the flipped classroom. Other key words like “group”, “ability”, “cultural”, “activities”, “communication” and “cooperation” suggest that in the flipped classroom there are more communicative cultural activities which are always done in groups and the learners’ abilities will be improved in these activities.

Figure 1. The Cloud Image of Positive Feedbacks

By capturing the key words from the negative feedbacks of the learners (See Figure 2), the teacher can find the problems that exist in the current classroom so that the countermeasures can be taken to address these problems. For example, it can found that “difficult”, “listening”, “materials”, “enough”, “much” are the key words in the center, showing that the listening materials the teacher assigned as pre-class or post-class tasks are too difficult and heavily loaded for some learners to finish on their own. “evaluation” is still a problem that needs to be solved in the optimization reform.

Figure 2. The Cloud Image of Negative Feedbacks

After the first round of flipped classroom reform, some measures have been put forward to optimize the flipped classroom in the second round. Problems will be addressed as to how to make the classroom more entertaining by designing varied activities, and how to balance the flipping and non-flipping method in the classroom, etc. These have been clearly shown in the key words from the cloud image (Figure 3). More specific measures will be taken like rating the listening materials and guiding the learners to choose the most suitable means of doing listening practice.

Figure 3. The Cloud Image of Suggestions

Conclusion

Active learning exercises in the flipped classroom allowed students to become directly involved with the learning process. The study adopts questionnaire and experimental research methods to carry out empirical research. Through the qualitative and quantitative analysis of the results of the study, the paper draws conclusion on the changes of learners' attitude, learning ability, breadth and depth, evaluation methods between the two rounds of flipping reforms. With comparison of the academic achievements, and the changes the flipped classroom reforms have brought about, several conclusions can be drawn as follows: First, flipping optimization reform provides a more efficient and satisfactory classroom for learners: learners have a higher recognition of the flipping model, their flipping learning experience and the teacher in the flipping classroom. Second, the flipping reform and the optimization reform have both promoted the learners' overall competence as well as their learning depth and breadth. Third, the flipping model and the reforms have lead to remarkable improvement in the learners' communication and cooperation skill, autonomous learning skill based on network resources, and their language skills. Fourth, the flipping model and the reforms have made special contribution to the training of the learners' critical thinking. Flipping classroom broadens the thinking of learners and makes them learn to think and solve problems from the varied perspectives. The optimized activities are aimed at promoting the learners' higher level of thinking ability, emphasizing active learning and critical thinking. Fifth, results showed that the learners of the second round of optimization reform had significantly higher scores than those of the first round of flipping reform in view of unit quizzes and final exams. The second round of optimization reform has achieved particularly significant results, indicating that targeted optimization measures have been effective and will show more of their significance. Aiming at the core problems of flipped classroom, such as the link between pre-class learning resources and classroom activities, the utilization rate of pre-class listening resources and the efficiency of formative evaluation, a series of optimization measures are taken. In practice, in addition to the web-based curriculum platform, but also creative use of questionnaire network, cloud images and other tools to achieve the reform of evaluation methods. For example, information extracted from cloud images indicates that the motivation of team members is addressed by designing self-assessment and mutual assessment forms online through questionnaires.

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