Research on the Construction of Flipped Classroom Model for English Teaching Based on SPOC

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Abstract

With the rapid development of information technology and mobile Internet technology, learners’ learning methods are also seeing huge changes. In this new era, learners are facing two major problems—information overload and fragmented knowledge. Under this context, college teaching can no longer be confined to the traditional classroom model; instead, it is a new trend to integrate MOOC, SPOC and flipped classroom models. This paper constructs a flipped classroom model for English teaching by integrating the mobile internet technology with classroom teaching and course materials, to address the disconnections between teaching software and materials in the process of teaching, with a view to comprehensively improve language learning in terms of time and space and truly realize borderless learning.

Keywords: SPOC, English teaching, flipped classroom, mobile micro-learning.

1.INTRODUCTION

The development of the “Internet+” era and the popularity of intelligent devices are gradually changing the way people access knowledge, and also promoting the continuous evolution and update of many new learning methods, including SPOC, mobile learning and flipped classroom. SPOC is a small-scale private online course with access restrictions. Consisting of elements such as micro video, real-time practice, interactive discussion and learning test, it is a localized learning model of MOOC, which overcomes the mismatches between MOOC and the teaching targets, course objectives, difficulty and students’ knowledge base (Fox, 2013). This concept was first proposed by Armando Fox from University of California Berkeley, who argues that using SPOC for classroom teaching can enhance teacher’s guiding role, consolidate students’ knowledge and increase their degree of participation (Wikipedia, 2017); Professor Robert Lue from Harvard University believes that the importance of SPOC lies in that online learning is no longer copying the classroom model and that instead, it is trying to create some more flexible and effective ways (Coughlan, 2013; Kang, 2014) thinks that compared with MOOC, SPOC integrates teaching with other elements like videos in the teaching process to give learners a complete and in-depth learning experience and improve their course completion rate, thereby enhancing the effects of self-learning.

Flipped Classroom or Inverted Classroom is one of the teaching models that have received the most attention from educators at home and abroad in recent years. It was proposed by Jon Bergmann and Aaron Sams, science teachers at Woodland Park High School, U.S.A. The basic idea of the flipped classroom teaching model is to allow the students to learn knowledge by themselves outside class instead of being taught in the traditional classroom and let the class be dominated by the interactions between teachers and students, including students’ reports and discussion about their learning, Q&A and small quizzes (Bergmann et al., 2012). So the whole flipped model is to complete knowledge transfer outside class and allow the knowledge to be internalized at class so that there will be sufficient time for teachers and students to communicate and solve major and difficult problems, thereby achieving better teaching results. Seeing this, more and more teachers are adopting the flipped classroom teaching model in their own teaching, which totally inverts the traditional teaching process where “knowledge is taught at class and homework is done outside class”. In a flipped class, the teacher is the instructor and facilitator of learning while the students are the main learning subjects who conduct learning activities under the teacher’s instructions; learning activities are no longer isolated, but rather, they involve the
interactions and personalized contacts between the students and the teacher. Flipped classroom is not simple video teaching and is also different from the traditional online courses. Based on an online learning system, it has integrated online learning and the face-to-face SPOC teaching model.

In terms of English learning, the researches on the above learning methods are mostly limited to the application of micro-class, Facebook, Twitter, QQ and network disk or the effects of English software in teaching or conducted just to improve a certain English language skill. These researches are very detailed, but they are based on various platforms, each of which has its own advantages and disadvantages, and what is more, these platforms were not originally designed for teaching, so the application of these platforms in teaching has great limitations. Therefore, the author integrates teaching content with teaching software, and constructs an SPOC-based flipped classroom model for English teaching, intended for all three stages of English teaching and learning – before, during and after learning.

2. CONSTRUCTION PRINCIPLES

Rita Richey believes that whether a model construction can succeed generally depends on four variables - students, content, environment and delivery. They are interrelated and interact with each other, and each total variable can be subdivided into various secondary variables at different levels (Osguthorpe et al., 2003), which constitute the decision-making basis for teaching design and also serve the main basis for the construction of the SPOC-based flipped classroom teaching model.

(1) Students: they are the target group of the flipped classroom teaching model and also the basis and core of all teaching model construction, because all teaching design cannot do without student analysis. Only when teachers fully understand students’ characteristics, learning demands, habits and interests can they be able to mobilize and develop their initiatives and enthusiasm and make teaching design achieve the best results.

(2) Content: due to limited content, monotonous form and lack of mobility and effectiveness, paper-based teaching materials have been gradually replaced by electronic teaching materials and electronic resources which are even more open. Therefore, the teaching content of the flipped classroom English teaching model is not limited to teaching materials, but it also includes the extension of the teaching materials and massive shared resources related to English learning.

(3) Environment: environment plays a vital role in learning. The teaching design under the guidance of constructivism should not focus on the teaching environment but rather the learning environment, because teaching means more control and domination while learning means more initiatives and freedom. The English teaching environment in the new era consists of hardware and software environments – the former includes network, development, application and training environments; and the latter includes various education and teaching platforms, education and teaching resources and application software and educational technology application models. The flipped classroom teaching environment not only refers to the language environment that teachers create for students during teaching, but also includes the independent learning environment for students.

(4) Delivery: delivery refers to the way knowledge is acquired. Compared with the other three variables, delivery is a very important controllable variable. The flipped classroom teaching model achieves knowledge delivery mainly by using hand-held mobile devices and designing English independent learning software.

3. CONSTRUCTION OF THE TEACHING MODEL

Based on the above construction principles, in the implementation of the software functions, H5+.NET Framework is mainly used as the program development language, SQL server2014 as the main database, and Sqlite database as the temporary database for mobile terminal storage (Kong, 2014). According to the above construction principles, the functional framework of the flipped classroom English teaching software is designed as shown in (Figure 1):
Figure 1. Framework of the SPOC-based flipped classroom for English teaching

(1) Course information

Course information: including a teaching program and a teaching plan (Tomory et al., 2015). ① Teaching program: designed to allow students to clearly understand the teaching objectives, tasks, key points and difficulties of the course, so that students can have a whole picture of the course and make learning plans; ② Teaching plan: The teacher should develop a term plan according to the course and the overall conditions of the students to ensure teaching will be effective and smooth.

(2) Pre-class preparation

Pre-class preparation: including background knowledge and analytical thinking. ① Background knowledge: the teacher should advise students what background knowledge they need to understand in each unit in advance so that students can read and lay a good foundation for learning of new knowledge before class (Bohaty et al., 2016); ② analytical thinking: the teacher can upload the questions that students need to think about before class to this module so that students can consult relevant information according to these questions to cultivate their thinking abilities and improve their learning initiative and consciousness.

(3) Classroom teaching

The classroom teaching module is one of the most important modules in the whole software, as shown in (Figure 2). It consists of 12 modules, including mobile check-in, listening learning, oral learning, reading learning and vocabulary learning (Sohrabi et al., 2016). Below is a detailed description of three major functions in this module - mobile check-in, vocabulary learning and classroom questioning.
The mobile check-in function saves the teacher from checking the attendance to a large extent. A student can complete check-in only by clicking the check-in button on the mobile phone as long as the phone is within the effective range (10m). In order to prevent students from leaving early, teachers can view the online status of students on the mobile terminal at any time. As shown in (Figure 4), the grey parts mean early leave or absence.

Figure 2. Classroom teaching module Figure 3. Classroom questioning function

Vocabulary learning module: consisting of two parts - vocabulary list and vocabulary test. ① Vocabulary list: The vocabulary in each unit of the course is presented in the form of a list to allow students to make use of their fragmented time to learn words and expand their vocabulary. ② vocabulary test: Under normal circumstances,
classes in colleges are very large, so teachers usually dictate in English to the students to evaluate their vocabulary. However, the test process may be affected by a number of objective factors, so the assessment results and students’ real learning status are often different (Touron et al., 2015). And what is more, it usually take teachers a lot of time to grade the students’ vocabulary test papers. The vocabulary test function can greatly reduce the workload of teachers, and at the same time improve the validity and reliability of vocabulary test. The vocabulary learning status of students can be tested from the following three levels: a. meaning test: students should select the correct meaning within the prescribed period (5s) according to the complete spelling of the word displayed on the mobile phone. Supposing there are a total of 70 words in this unit, the phone can randomly extract 50 words for testing. b. Listening test: students choose the correct spelling within the prescribed period (5s) by listening to the correct pronunciation of a word. c. spelling test: spelling test can be done in two ways - spell according to the meaning or pronunciation of a word. According to the meaning: the phone shows the Chinese meaning of a word, and students should provide the correct spelling within the prescribed period (10s); according to the pronunciation: students should provide the correct spelling within the prescribed period (10s) by listening to the standard pronunciation of a word. After the above vocabulary test is completed, the phone will automatically list the wrong words, and give the test score. In order to ensure the reliability and validity of the vocabulary test, it is recommended that the teacher choose to conduct a test on the students at the same time and at one specified place. This test can assess students’ vocabulary learning status from various aspects – whether they understand the meanings of words and whether they can catch the words and spell them out. This can help teachers get a whole picture of the students’ vocabulary learning status, and also allow students to know about their own progress in vocabulary learning.

The classroom questioning module mainly includes two functions – teacher's questioning and student's questioning (Al-Zahrani et al., 2016). ① Teacher's questioning: The teacher can raise questions to a random student in class. As shown in (Figure 3), When the teacher clicks on the classroom questioning button, the system will automatically generate a student number and name and the student’s phone will send a system prompt tone, prompting the student to answer the question, as shown in (Figure 5). This avoids the embarrassing situation where students keep silent when the teacher asks a question, and at the same time it can add some fun to the class. ② Student's questioning: If a student has any question during class but he/she cannot interrupt the teaching, he/she can use this function so that the teacher can adjust his/her teaching per students’ questions.

![Figure 5. Flow Chart of Vocabulary Learning Function](image)

(4) After-class independent learning

This module includes exercise, Q&A, knowledge extension and resources sharing. ① Exercise: This module can provide online test on all after-class exercises and give the correct answers, so that students can better
understand their learning status. ② Q&A: This module provides an online communication and interaction platform between teachers and students and between students. Students’ questions can be given feedbacks and solutions here. Q&A can also be carried out in a variety of ways, such as on Facebook, Twitter, QQ, network disk and so on (Banciu et al., 2012). ③ Knowledge extension: This module has collected and organized some micro-courses, references and learning website links related to the course for students to learn. ④ Resource sharing: This module uses high-quality enterprise or college cloud disks so that teachers and students can share teaching resources freely.

(5) Course assessment

This consists of four modules – score structure, sample questions, scoring standards and questionnaire(Kaplan et al., 2016). ① Score structure: Student are able to know the proportion of their learning performance in each part of the course through this module, like usual performance, online learning score and final examination score. ② sample questions: This module has collected the test papers of this course every year as references for the students so that students will know what to focus on. ③ Scoring standards: This module has provided the detailed scoring standards for the test papers of the course for reference by the students. ④ Questionnaire: This module can help design a questionnaire for a specific question and perform data analysis using the statistical survey results of students’ answers or votes.

(6) Learning effect evaluation

This part mainly consists of four modules: learning time, learning progress, learning effect and comprehensive evaluation. ① Learning time: This module not only records the students’ cumulative learning time on this course, but also shows the frequency of their learning and the duration each time, so that teachers can understand the students’ learning habits and monitor their learning status. ② Learning progress: Students can use this module to check the content they have learnt in this course and further understand their learning progress. ③ Learning effect: This module records all the test scores of the students and makes statistical analysis of these scores to reflect their learning effects in different stages (Munoz-Merino et al., 2015). ④ Comprehensive evaluation: This module performs statistics and analysis of all the learning data recorded in the software and gives comprehensive evaluation of the students’ overall learning status.

The construction of the above functional modules shows the supporting role of network communication technology in foreign language teaching and emphasizes the extensibility, mobility and monitorability of teaching and learning, which truly achieves independent, flexible, personalized and mobile learning. After its practice in English teaching for one semester, it shows that the application of the flipped classroom in English teaching can stimulate students’ interest in learning, and effectively improve the effect of teaching.

4. CONCLUSION

The SPOC-based flipped classroom model for English teaching is a new type of learning model that integrates mobile communication technology with classroom teaching, proposed under the context of the education reform in the “Internet+” era. It combines pre-class, in-class and after-class online and offline teaching and allows students to understand, internalize and apply knowledge, which is truly a “student-centered” reform of the teaching paradigm. This model can be widely promoted in the teaching of many courses, but the specific implementation method should “vary from course to course” and need to be further explored and studied by front-line teachers. SPOC is quietly launching a teaching reform in colleges and universities. Front-line teachers should seize this opportunity to conduct research based on SPOC and try to transform from imparters of knowledge to instructors and facilitators of learning, so that students will achieve more efficient learning results and truly become the masters of learning.

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