7th IMELT 2020 Singapore 012-011 Boriboon Chobthamdee

Effect of Flipped Classroom with Digital Video on Learning Achievement of English Teaching Program Students

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Abstract

Flipped Classroom (FC) is a pedagogical approach in the 21st century. It is a learning management that the students prepare themselves for learning before class. Students could learn outside of the classroom by learning materials with the teachers introduce to content at home, or they could learn through media and technology that teachers provide for them, then the students come to the class to discuss or answer the questions from there background knowledge. Digital video is one of the most important media and innovations that have been continually employed in teaching and learning. Digital video is represented in the form of text, images, and animation. The video could be edited or montaged by computer programs. The completed digital video are kept in the storage and students could access some knowledge from the digital video at anywhere and anytime. The aim of the study is to develop digital video used in flipped classroom for the English Teaching Program students in faculty of Education, Phranakhon Si Ayutthaya Rajabhat University. The research instruments were the flipped classroom lesson plans, digital video, and learning achievement tests. The data collection were analyzed by mean, standard deviation, and
t-test. The learning achievement after using the flipped classroom with digital video was higher than before using the method level of significance.

Keywords: Flipped Classroom, Digital Video, Learning Achievement

Introduction

Learning management paradigm in the 21st century is to change from the traditional instructions into the new instructional strategy called 'flipped classroom'. It is an instructional strategy and one type of blended learning. The concept of flipped classroom is to reverse the traditional instruction by delivering online instructional content outside the classroom and the students need to study by themselves and discuss of what they learn in the classroom. Before class, students learn new content through media and technology produced by teachers or other media provided on the Internet by themselves (Green, Banas and Perkins, 2017). Inside the classroom, the students do many activities related into the new knowledge such as discussion, group work, or the students do active activities that the students could cooperate and help each other. The students could exchange their knowledge through group work by summarizing the information after discussion and make some tasks to serve the objectives of learning activities organized by the teachers (Muzyka and Luker, 2016). The roles of the teacher are changed from the instructor to be a facilitator, coaching or mentoring to help the students to reach the goal (Wolff and Chan, 2016). Flip classroom is one of the most important teaching strategies for teachers in learning management paradigm in the 21st century (Kurt, 2017).

Media and technology supporting self-study is one of the most important tools to become a successful flipped classroom. Digital video is the crucial media and it is well known in applying to the flipped classroom because it could be displayed through texts, audio, images, and animation. In addition, the process of digital video production is conducted by smartphones, or tablet. The computer programs could be used for editing the video; therefore, it is easier to produce digital videos and publish them on the Internet or social media (Bull and Bull, 2010; Köster, 2018). Students could learn by themselves from the digital videos via smartphones or tablets, both IOS and Android (Jackson, 2016). As the result, some researchers did their research by applying the digital video in their classes, especially pre-service teachers and English Teaching students. The results of those studies have been shown that the students could develop their knowledge, long term memories, and language skills. It is a good way to develop English Teaching Program students by using digital videos for teaching and training (Picci, Calvani and Bonaiuti, 2012; Sert, 2012; Chen, 2018; Prilop, Weber and Kleinknecht, 2020). In addition, some researches on the use of digital video in the flipped classroom significantly develop both academic knowledge and language skills. (Evseeva and Solozhenko, 2015; Obradovich, Canuel and Duffy, 2015; Hao and Lee, 2016; Chilingaryan and Zvereva, 2017; Patanwala and et all, 2017). This research aims to study the effects of the flipped classroom through digital

video on learning achievement of the students in order to develop teaching and learning management in the 21st century and it could support learning achievement of English Teaching Program students.

Objectives

1. To compare learning achievement before and after teaching flipped classroom with digital video of the students in English Teaching Program.

2. To study the satisfaction from the students in English Teaching Program in flipped classroom with digital video.

Research Questions

1. Is learning achievement after teaching by flipped classroom with digital video higher than before teaching the students in English Teaching Program ?

2. What level of the satisfaction from the students in English Teaching Program taught by flipped classroom with digital video?

Literature Review

Flipped Classroom

Flipped Classroom is a learning management based on the concept of studying for education at home and using the knowledge gained to work in the classroom. Students learn from home through media or technology from the data source produced by the teachers and the students could study by themselves (Bergman and Sams, 2012; Green, Banas and Perkins, 2017). Learning activities through media could enhance students' learning instead of classroom lectures by allowing students to study through video, multimedia, Massive Open Online Courses (MOOC), Social media or other media. The content on the media related to learning activities (Finn and Zimmer, 2012; Chen and et al, 2014; Muzyka and Luker, 2016; Green, Banas and Perkins, 2017). Students are able to study at home and apply their knowledge they gained in their classrooms to do some activities. In the classroom, an active learning is an important activities which students need to do their group work and cooperate and help each other. The students should gain their knowledge by summarize the information they get, they should discuss the topics, or they could create new innovation to serve the objectives of learning activities. (DeLozier and Rhodes, 2017; Jovanovi and et al, 2017; Ma, Chan and Cheng, 2019). The roles of the teachers are change from teachers to be the facilitators, coaches, or mentors. They could assist or suggest the students to get knowledge in the right direction. In learning management, the teachers should explain the steps of flipped classroom, learning activities, using media and technology related to the activities to the students in the class, because the

students have to learn by themselves. Therefore, the students have to get the accurate information to have clear understanding of learning activities. The questions in the classroom activities should be related to the content of the data sources provided for the students. The teachers should encourage their students to work in groups, help each other and support to do cooperative learning. Furthermore, the students could gain knowledge through group processes, plan schedule for their tasks, practice by themselves and discuss the information they get in the classroom. In addition, the process of assessment should be conducted in order to make the students to improve their understanding of the content in the same direction (Nicol and Macfarlane-Dick, 2006; Johnson and et al, 2014; Wolff and Chan, 2016; Reidsema and et al, 2017). The assessment from the students is the way to encourage them to gain knowledge at the same level. Learning activities in the flipped classroom are not only learning management but it also shows the potential of the media systems and technologies which leads to achieve the goal of knowledge development from the students in deeper level of their understanding. In addition, teachers should participate in learning activities with their students because it could support the professional teachers in learning activities and lead to positive changes learning management in the future.

Digital Video

Digital video is a media and innovation that can present text, sound, images and animation. Students could access the digital video in various ways such websites, Social media, YouTube, Facebook via computers, tablets, or smartphones (Burgess and Green, 2009; Rango, 2010; Paul, 2011; Köster, 2018; Fischer, 2020). Digital video can be presented on the internet, so the students don't have to waste their time going outside or travelling. They can watch and study at anywhere-anytime, whenever they are ready to study via digital video on the internet all the time they want. It is considered that digital video is one of the most important instructional media for educational management in the digital age. The definition of digital video is defined to be a digitally recording images, data, animation and sounds. The data in the video could be edited and saved by computer programs. Types of digital videos are narrative digital videos, documentary digital videos and animation. In addition, there are various types of digital video for education, including digital video for general education, digital video for instruction, digital video for formal education and non-formal education. Digital video for education mainly focus on knowledge, content for education or instruction (Haskell, Puri and Netravali, 2002; Bull and Bull, 2010; Mitra, 2010; Köster, 2018; Meager, 2019). Type of digital video is an important factor to determine script writing because it is related between the type of digital video and writing styles to serve the purposes of production.

Digital video materials and equipment consist of various types of digital cameras such as MiniDv, DVD, Hard Disk and Flash Memory. In addition, there are some materials and accessories such as tripods, lenses, batteries, chargers, power adapter, light of digital cameras, memory cards, USB cables, camera bags and computer programs used for the productions (Haskell, Puri and Netravali, 2002; Mitra, 2010; Rango, 2010; Jackson, 2016; Fischer, 2020).

Survey of needs analysis and the problems should be conducted in order to develop the digital video and design the appropriate digital video. Producers design the types of digital video, plan the storyboarding, and make the script. Then, they continue to develop a digital video prototype, give to the experts for assessment and try out with the experimental group to find the effectiveness of digital video (Bull and Bull, 2010; Jackson, 2016; Köster, 2018; Meager, 2019).

The advantages of digital video are not only to present various content via DVD, VCD or internet but it is also important for educational media in distance education. However, there are some limitations including materials and equipment which are too expensive for some schools which getting limited budget. In addition, the production of digital videos needs the team staff but it is difficult to set the team production of digital video because a team work should consist of the professional staffs to make high production of digital videos (Bull and Bull, 2010; Jackson, 2016; Köster, 2018).

Data Collection and Data Analysis

This research is an experimental research and data collection was conducted in the first semester of the academic year 2019.

1. The students in the experimental group did pre-tests before teaching under the lesson plans. After finishing teaching, students did the post-test. The learning achievement tests scores was 1 score for correct answer and 0 score for wrong answer.

2. The learning achievement tests of English Teaching Program students were analyzed by Mean ($\overline{X}$) and Standard Deviation (S.D.). The comparison of learning achievement scores were pre-test, post-test and as t-test.

3. The satisfaction was conducted by the questionnaire and analyzed by means ($\overline{X}$) and standard deviation (S.D.).

Findings

The effects of flipped classroom with digital video on learning achievement of English Teaching Program students were showed as follows;

Table 1

The comparison of learning achievement pre-test and post-test in flipped classroom with digital video

Experimental group	n	Full score	$\overline{X}$	S.D.	t	Sig
Pre-test	34	30	16.29	1.99	16.93	0.000
Post-test	34	30	24.06	1.89		

From Table 1, it was found that pre-test and post-test scores from learning by digital video of the students were different. The result was showed that learning achievement of post-test was higher than before learning at the statistical significance of .05

Table 2

Student satisfaction with the flipped classroom with digital video

Factors	$\overline{X}$	S.D.	Range
Students can search for digital video knowledge anywhere-anytime.	4.47	0.51	High
Content of Grammar for English teacher course in digital video is easy to understand.	4.35	0.65	High
Flipped classroom teaching with digital video helps to improve learning.	4.32	0.59	High
Digital video in Grammar for English teacher useful to students.	4.32	0.47	High
Students will use digital video in Grammar for English teacher in the future.	4.29	0.46	High
Digital video is a media that is suitable for the flipped classroom.	4.26	0.62	High
Students love the activities of the flipped classroom with digital video.	4.18	0.63	High
Text, images, animation and sound in digital video are appropriate.	4.18	0.58	High
The tests is related to the content of Grammar for English teacher.	4.15	0.61	High
Students review content of Grammar for English teacher via digital video.	4.03	0.58	High

From Table 2, it was found that the students were satisfied with the flipped classroom with digital video at the high level. Considering the questions, it was found that students can access to the digital video knowledge anywhere- anytime and the average of satisfaction were the highest mean ($\overline{X}$ = 4.47) followed by content of Grammar for English Teacher course in digital video is easy to understand ($\overline{X}$ = 4.35), Flipped classroom teaching with digital video helps to improve learning ($\overline{X}$ = 4.32). The lowest mean of satisfaction were Students review content of Grammar for English teacher via digital video ($\overline{X}$ = 4.03), The tests is related to the content of

Grammar for English teacher ($\overline{X}$ = 4.15), and Text, images, animation and sound in digital video are appropriate ($\overline{X}$ = 4.18), respectively.

Discussion

Comparing the learning achievement flipped classroom with digital video of students in the English Teaching Program, it was found that the English language learning achievement for grammar was significantly higher than pre-test. As the result, the satisfaction of the students in learning by flipped classroom with digital video was in the high level. The learning activities helps the students to improve learning. In addition, the content in digital video was easy to understand and the students could reach to the content via digital video anywhere-anytime. As a result, students prefer to study by flipped classroom activities with digital video and they think that the media is appropriate to them. These elements may be able to encourage students to study until they have a complete understanding of the course, resulting in a significantly higher learning achievement. In addition, there were some researches which have been showed the same results to use flipped classroom with digital video to organize teaching and learning activities. Furthermore, learning achievement of the students tend to be high and the learning activity could support students to do group work with cooperative learning, and they could deal with a good team work through critical thinking and problem solving (Cotta and et al, 2016; Kurt, 2017; Gold and Holodynski, 2017; Patanwala and et al, 2017; Tan, Yu and Fu, 2017; Desai and et al, 2018; Sojayapanand and Khlaisang, 2018). The results from Kurt (2017) have been shown that the group of students taught by flipped classroom got better learning outcome than traditional classroom. The finding Kurt (2017) could be supported this research finding because the average score form the post-test was higher than pre-test. In addition, Hao and Lee (2016) suggested that flipped classroom was suitable for pre-service teachers in 21st century classroom. For digital video, learning outcome form digital video was important to address the cultural and psychosocial aspects (Picci, Calvani and Bonaiuti, 2012), therefore; further research should be related with deep cultural aspect, and transcultural society. In addition, digital video could facilitate lifelong learning and professional knowledge of pre-service teachers' feedback according to the finding from the effects of digital video-based feedback environments on pre-service teachers' feedback competence (Prilop, Weber and Kleinknecht, 2020). It could be concluded that the result from the study of the flipped classroom with digital video have been shown not only get higher English learning achievement but it also develop cooperative learning from the students in doing group work. (Picci, Calvani and Bonaiuti, 2012; Hao and Lee, 2016; Evseeva and

Solozhenko, 2015, Chilingaryan, and Zvereva, 2017; Prilop, Weber and Kleinknecht, 2020).

Recommendations

1. The implementation of this research should prepare the students in flipped classroom with digital video. Teachers need to understand how to teach and prepare technology to make learning successful according to objectives.

2. Further studies should add other technology variables which can be applied to the flipped classroom with digital video such as social media, virtual reality etc.

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