Flipping the Classroom for English Language Learners: A Study of Learning Performance and Perceptions

Busaya Santikarn, Saovapa Wichadee[✉]
Bangkok University, Bangkok, Thailand
`saovapa.w@bu.ac.th`

Abstract—Innovative teaching in a form of the flipped classroom was adopted in an English course as a pilot project in a private university in Thailand. The purpose of this study was to assess how a modified "flipped classroom" had an impact on students' learning performance and perceptions. The target group involved in a non-randomized experiment was 40 students from one section enrolled in an advanced English course in the summer session of the academic year 2016. They were required to watch the prerecorded lectures before class and then attend class to discuss on the topics, share knowledge, and perform tasks. The instruments consisted of 1) 5 assignments which were administered to the students, 2) a questionnaire investigating the students' perceptions on the flipped classroom and 3) a questionnaire used to find out their perceptions on autonomy. Data were analyzed by using percentage, mean, and standard deviation. The findings revealed that after the students were taught in the flipped classroom, their English scores were satisfactory. The results showed that most students were satisfied with lecture videos and Edmodo, the learning platform. They demonstrated good perceptions on flipping the classroom. What they claimed to gain the most from this class was becoming an autonomous learner. In addition, students' autonomy perceptions were higher than those before they were taught through the flipped classroom approach.

Keywords—flipped classroom, blended learning, language learning

1   Introduction

An issue of having inactive students in class, time pressure and students' complaints about having too much homework are some of the main challenges that almost every teacher has to deal with on a daily basis [1]. To overcome these problems, flipped classroom is a perfect choice as the model encourages students' active participation, promotes support from teacher and peers to handle homework and allows more free time in class [2]. The flipped classroom model seems to be more favorable in higher education than in K-12 education. This is because the model lends itself to active learning [3, 4].

The flipped classroom involves blended learning---a combination of face-to-face in-class learning and distance learning. Students will benefit from participating in-

class group discussion and engaging in online video lessons and assignment that must be completed additionally outside of the class time. Garrison and Kanuka [5] comment that the flipped classroom approach "is an integration of face-to-face and online learning experiences—not a layering of one on top of the other" (p. 99). The flipped classroom approach shifts the responsibility from teacher to the students [6]. The approach helps foster learner autonomy through online video lessons and class activities at school. Owing to a flexible learning atmosphere and adjustable learning facilities, the flipped classroom is very suitable for language classes [7]. The idea to supplement the class time with homework, assignments and readings makes the approach perfect for language education. Teachers can prepare the students by providing the self-guided grammar tutorials and quizzes before class. Thus, class time will be dedicated solely to practicing language used in real life. Reynard suggests that classroom lessons be used as scaffolding rather than using it as the core instruction as in traditional classes [8]. Teacher should spend class time, a very significant part of learning process focusing on dialog practice, working in groups or demonstrations.

2 Literature review

2.1 Learning achievements in the flipped classroom

Earlier studies showed that flipped classrooms also contributed to high score achievement on exams since students had time to study the lesson materials by themselves before joining the class [9]. Davies et al. studied effects of using technology in flipped classroom on students' achievement [10]. The findings revealed that the use of technology in a flipped classroom can effectively enhance students' learning as seen from the improvement in scores. Looking at the results of pre-tests and post-tests, learning improvement and mastery of the subject in the post-tests was reported in many studies. The students demonstrated their understanding of the subject content and high achievement on the test [11, 12, 13]. A study comparing flipped and traditional classrooms showed that teacher was able to cover more content and the students outperformed in the flipped classroom [14]. This is consistent with Hung [15]. The study revealed that the structured and semi-structured flip lessons demonstrated greater effectiveness of the instructional designs than the non-flip lessons.

2.2 Perceptions on the Flipped Classroom

Numerous studies examined the flipped classrooms by comparing the flipped classes to those traditional classes conducted in the previous semester and agreed that the flipped classrooms were more favorable. For example, a study conducted by Moffett and Mill [16] revealed that flipped classroom model received highly favorable feedback from most of the veterinary students in the study. A similar result was found in a comparative study conducted by Chen and Chen on statistics students' perceptions about cooperative learning in flipped classroom and the traditional classroom [17]. The study showed that flipped statistics classroom was preferred to the traditional

classroom. Another recent study explored the students' attitudes towards the flipped classroom. The findings showed that the flipped classroom was chosen over the traditional one by the majority of the students [18]. Moreover, two studies found out that flipped classrooms excel traditional classrooms in terms of support from teacher, student participation and active learning [19, 20]. Tune et al. conducted a survey to examine students' perspectives regarding the flipped classroom model at the end of the course, and the findings revealed that the model allowed the teachers to have remarkably more class time to focus on important ideas and/or involve students in problem-solving activities while the teacher was also assured that students had learned essential lessons from didactic lectures [21]. Hung studied potential effects of flipping the classroom on learning attitudes and concluded that many benefits can be derived from flip lessons [15]. In flipped classrooms, not only students outperformed but they also developed more positive attitudes toward their learning process. Students were found more dedicated to learning than in traditional classrooms.

However, it might be too early to arrive at a conclusion that flipped classroom is completely favorable. In spite of many supports from numerous studies as mentioned above, a few studies show the opposite results. For example, a study revealed that students expressed negative attitudes toward the use of flipped classroom despite the fact that they improved their learning and communication skills [22]. Another study found that lecture based approach was preferred rather than the flipped classroom among students and the staff [23].

2.3 Autonomy in the flipped classroom

Autonomy was defined as "the ability to make your own decisions about what to do rather than being influenced by someone else or told what to do" (p. 4) [24]. It is considered a goal of the education in 21st century. This study focuses on autonomy in two aspects. First, due to the fact that people learn at a different pace, lessons should be designed to accommodate individual needs. In response to that, flipped classroom model can be a perfect choice. Second, it is very important that students be trained to become independent learners. Flipped classroom is suitable for many types of courses because it allows students to learn English effectively and autonomously. Particularly for language learning which makes use of authentic materials or online sources in teaching, flipped lessons can be used to facilitate students' learning in a more systematic way to acquire the target language.

With regard to autonomy in flipped classrooms, many studies showed positive results. Zainuddin and Perera found out that the flipped classroom cultivates higher autonomous learning and better interaction among peers [25]. Han also revealed that learner's autonomy was increased in flipping ESL classroom [26]. Tune et al [21] reported marked and quantified improvement in comprehension of the concepts while McLaughlin et al. indicated increase in self-reported learning [19].

In summary, when it comes to implementing the flipped classroom model in an English course, it is very crucial to find out about its effectiveness in respect of language performance and opinions on this approach. In addition, the students practiced the means of autonomous English learning with constructed video clips, materials,

and activities. At the end of the semester, there might be some development of learner autonomy. With this issue in mind, learner autonomy should be investigated because it is a prime objective of applying the blended learning to the course. Findings and insights from this study will shed some light on using the flipped model for course design in the future. The following questions guided the current study.

1. What is the effect of the flipped classroom on the learning achievement?
2. What are the student perceptions on the flipped classroom?
3. Will students increase their autonomy perceptions after the intervention?

3 Methodology

3.1 Participants

Forty students from one section enrolled in an English course entitled "English for Exploring the World" were selected to experience learning in a flipped classroom. The participants in this study were 15 male and 25 female students (37.5% and 62.5% respectively), aged between 19 and 24. They were from two faculties (Economics and Business Administration). These students were enrolled in the summer semester of academic year 2016. In this semester, they were required to join a flipped classroom which was considered as a new teaching model. Regarding ways of access to online learning, 30 students watched video clips on mobile phones, while 7 of them studied on notebooks, and only 3 students still used desktops to study the lecture videos. With regard to ethical approval, all the participants in this study were voluntary and anonymous. Allowing the authors to use reveal their performance and responses for publications, the participants also signed a consent form that briefly described the study before the intervention started.

3.2 Research instruments

The study was carried out by one of the researchers. The quantitative research approach was utilized to collect the data. The research instruments consisted of a scoring report gained from five assignments, a questionnaire investigating opinions on the flipped classroom, and a questionnaire used to examine learning autonomy. Firstly, we take performance in tasks as the main data for analyzing using scoring rubrics. There were 2 writing assignments (20 points), 3 speaking tasks (20 points) and in-class activities (10 points). Secondly, a questionnaire with three parts was distributed to ask students about their perceptions on the flipped classroom after the intervention. The first part inquired about background information such as gender, faculty, and the type of device they preferred to access the learning platform. The second part asked them to rate how helpful the video clips were and how effective the learning platform (Edmodo) was. These statements were in a form of 4-point rating scales. The third part asked them to rate on ten items to see how much they gained from the flipped classroom. The third instrument was another survey. It was a questionnaire with five-

point Likert scale to acquire students' perceptions on autonomy prior to and after the classroom instruction.

To ensure the validity of the research instruments, 3 experts in the English teaching field were asked to validate the instruments. The questionnaires were later adjusted accordingly to the feedback from the experts. To assess the reliability of the question-naires with 5-rating scales comprising the perceptions on the flipped classroom (10 items) and learning autonomy questionnaire (7 items), the researchers distributed them to 40 students outside the experimental group. Cronbach's Alpha Coefficients were calculated to evaluate the internal consistency reliability, and the results were 0.87 and 0.80 respectively.

3.3 Online learning platform

In this study, Edmodo was selected to be a learning platform in the pre-class stage. Edmodo is a social media network that looks like Facebook. There are several reasons why Edmodo is suitable for flipping the classroom. First of all, it has been widely used by classes all over the world; it is free of charge and user-friendly. Secondly, results in many previous studies showed that students had positive attitudes toward the use of Edmodo [27, 28, 29]. In order to make the students understand the course objectives and get familiar with Edmodo, we had trained them before the intervention started. A virtual class can be set up for students to work together on group assign-ments. Apart from watching video clips or PowerPoint slides, both teachers and stu-dents can share content, discuss topics, receive their teacher feedback and have access to grades very easily. Edmodo strongly fosters innovation, creativity, active participa-tion and collaboration [30].

3.4 Data analysis

Quantitative data was analyzed using SPSS program. Percentages were used to ex-amine the students' background information and their opinions on advantage of video clips as well as effectiveness of flipping the class while descriptive statistics such as means and standard deviations were employed to calculate on perceptions toward the flipped classroom and autonomy based on the following ranges: 1.00-1.50 = very low, 1.51-2.50 = low, 2.51-3.50 = moderate, 3.51-4.50 = high, 4.51-5.00 = very high.

3.5 Course design

The flipped classroom approach provides teaching and learning activities where students watch a video lesson outside the class through distance learning and have hands-on activities in the class. Online lessons allow teachers and students to work together during valuable class time that would otherwise be spent on lectures. There-fore, the creation of learning model in the flipped classroom is meaningful since it has a lot to do with learner's learning environment [31]. This study adopted a three-stage model proposed by Estes et al. [32] to flip the classroom: the pre-class (modelling, pre-assessment), in-class (clarifying concepts, solving problems) and post-class (as-

sessment, application, transfer) stages. However, some adjustments were done to suit the requirement of the course as shown in figure 1.
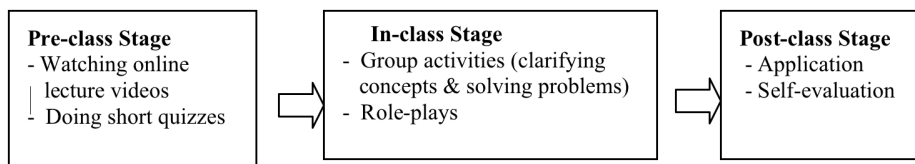
| **Pre-class Stage**
- Watching online
  lecture videos
- Doing short quizzes | → | **In-class Stage**
- Group activities (clarifying
  concepts & solving problems)
- Role-plays | → | **Post-class Stage**
- Application
- Self-evaluation |

Fig. 1. Course Design of Flipping a Class (adapted from Estes et al., 2014)

There were 7 weeks in the summer semester. Students and the teacher met in a classroom for three hours twice a week. Followings are stages of flipped model used in this course.

Pre-class Stage: a self-study on Edmodo. Pre-class sessions aim to help students explore knowledge through educational technology. Constructing knowledge or learning the new content was done at home before the in-class session. Students were required to watch instructional video clips and answer questions or do short quizzes about the content on Edmodo which was employed as an online platform for learning. These clips taught about grammatical structures, vocabulary and language usage. Details on speaking and writing tasks that would be performed in class were recorded and demonstrated here. Moreover, several useful links from outside were selected and added as supplementary lessons on Edmodo too. The online platform, Edmodo was the best channel for discussions and inquiries.

In-class stage: group activities and role-plays. Class time was spent more on activities. Group activities increased peer interaction, focusing more intensely on higher cognitive and group-based learning including small group discussion, problem solving (worksheet), interview, role-play and peer review on writing tasks. However, individual activities were occasionally done through Polleverywhere.com and Kahoot. Thus, an active learning experience would occur in the classroom. The advantages of this stage are to promote the development of critical thinking and problem-solving skills, as well as to improve interpersonal skills.

Post-class stage: application and self-evaluation. The post-class stage aimed to provide students with opportunities to apply what they had learned including exercises, games, and quizzes in an online workbook (cambridgelms.org/main). Additionally, they were required to evaluate their learning performance on tasks, assignments, and activities.
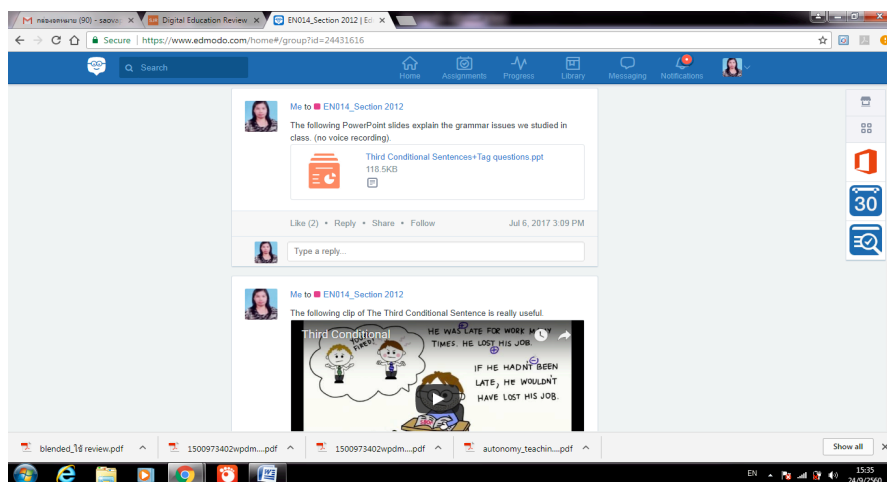
Fig. 2. Interface of Edmodo showing materials and other resources from Youtube

4 Results

Based on scoring reports, it was found that mean score of performance was 34.28 with standard deviation of 7.965. The minimum score was 17 points while the maximum score was very high (49 points). Although this was the first time the flipped classroom was implemented in EN014 course, the result was rather satisfactory when compared to another class that used a traditional method, which gained the average score at 29.70.

Table 1. Students' learning achievement

No. of Students	Total Score	Min	Max	Mean	S.D.
40	50	17	49	34.28	7.965

Students were asked to rate from 1-4, indicating how much the video clips were helpful in their learning based on answers comprising: very helpful, helpful, neutral, and not helpful. The response indicated that twenty-four students perceived watching videos before attending the class "very helpful", while thirteen students considered it "helpful", and three of them chose "neutral." It is interesting to see that nobody rated "not helpful."

There were many tasks the students had to do on the learning platform such as watching video clips, communicating with others, uploading their video clips, doing exercises, and submitting homework. Therefore, to ensure its effectiveness, it was necessary to ask the students to rate from 1-4, indicating how they perceived this tool with 4 being the most effective. The findings revealed that 17 of them perceived Edmodo effective, while 15 of them considered it very effective, and 8 of them felt neutral with it. It is noted that nobody chose "not effective."
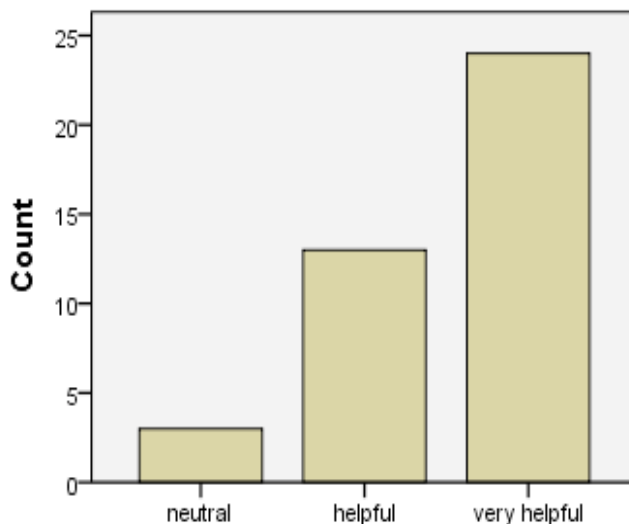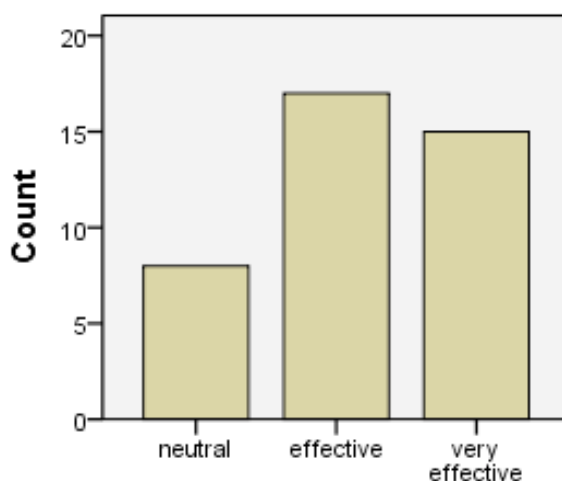
Fig. 3. Usefulness of video clips

Fig. 4. Effectiveness of the learning platform (Edmodo)

Then the students were next asked to rate how much they benefitted from the flipped classroom on 10 items in a form of five-rating scales. The findings revealed that all items were rated at high levels. The three items with highest mean scores included being more responsible (mean = 4.27), becoming more engaged with the activities (mean = 4.25), and increasing motivation to learn English (mean = 3.93), and becoming active learners. The average score was 3.89 with a standard deviation of .492, which indicated that students had high perceptions on flipping the class.

Table 2. Students' perceptions on the flipped classroom

No.	The flipped classroom ……………	Mean	S.D.
1.	enabled me to be more responsible in learning	4.27	.751
2.	made me engaged with the activities.	4.25	.776
3.	increased motivation to learn English.	3.93	.694
4.	encouraged me to be an active learners.	3.93	.764
5.	improved my language proficiency.	3.90	.778
6.	helped me understand the contents easily.	3.80	.648
7.	allowed for self-pace learning.	3.78	.698
8.	allowed for interaction and communication.	3.75	.670
9.	promoted cooperation among students.	3.73	.751
10.	provided a good learning experience	3.57	.636
	Average	*3.89*	*.492*

Some students were probably ready to study in a new learning environment, others might attach to the conventional learning style. Autonomy perception was, therefore, a factor that might have an impact on learning achievement. The impact of flipping the class on learner autonomy was investigated before and after the intervention. Students were asked to rate how they perceived their ability to do in this course.

Based on Table 3, the findings revealed that before the intervention, they had a high level of perceptions on autonomy. The average score was 3.55 with standard deviation of .409. Although 3 items were at high levels, 4 items were still at moderate levels. However, after taking the flipped classroom, their perceptions were increased to high levels in all items. The average score was 4.13 with standard deviation of .365. This means the learning process of flipping the classroom had an impact on their autonomy perceptions.

Table 3. Pre-and post surveys of autonomy perceptions

No.	I think I am able to ……………	Before		After	
		Mean	*S.D.*	*Mean*	*S.D.*
1.	set my goal of study	4.03	.768	4.43	.594
2.	decide how much I can learn	3.45	.677	4.08	.730
3.	check how much progress I make in my study	3.45	.815	4.02	.698
4.	choose the types of learning activities	3.35	.864	4.23	.768
5.	assess my own study	3.49	.679	4.10	.744
6.	select materials or resources to study	3.52	.751	4.00	.751
7.	control control my own learning	3.58	.747	4.07	.694
	Average	*3.55*	*.409*	*4.13*	*.365*

5 Discussion

The goal of the flipped-class course design in our study was to help students learn more effectively. After the intervention, it is needed to investigate how the flipped class affected their learning performance and perceptions. Findings showed that students were able to perform well in all tasks, have good perceptions on the flipped classroom as well as increase autonomy perceptions. Several issues should be brought to discuss as follows:

The first discussion is on learning performance which was assessed from two speaking tasks and three writing assignments. The mean score is rather satisfactory, affirming the effectiveness of the flipped model proposed in this study. This is probably because of the learning stages that fit the context of study. Students started from a preview of online video lessons that enabled them to construct understanding and recognize difficult concepts before they attended the class. When they attended the class, they were provided with a wrap-up of contents. Then, the peer-instruction method through group discussion and in-class activities was used during the face-to-face sessions to stimulate active engagement of students and to reach deeper understanding. They could make use of the knowledge in the speaking and writing tasks. Rather than that, the post-class stage helped them to apply what they had learned before. The teacher could evaluate their performance to see how much they could learn through this approach. The findings were found to be similar to previous studies [14, 15] in that students outperformed in the flipped setting.

The flipped classroom blends the use of technology-based asynchronous teaching methods and traditional teaching methods to give students more control of their own learning and promote greater interaction and cognitive engagement [33]. So, the second issue to be discussed was about lecture video clips and Edmodo which was used as an online platform. The findings showed that students were satisfied with the benefits of watching video clips and effectiveness of Edmodo. This is probably because video-recorded lectures enabled them to understand the content easily. In addition, with the features of Edmodo which promoted mutual learning, they could share content, discuss topics, and ask questions very fast. Communication among peers and teacher could occur at their convenience after class. The findings revealing that students were satisfied with Edmodo were similar to the previous ones [27, 28, 29, 30].

There is also a need to cater for students' perceptions on the flipped classroom. The survey results showed that they were satisfied with the new learning environment. They perceived that they gained a lot of advantages. The flip-class setting fostered better engagement in activities and autonomous learning skills as both items gained the highest perception scores. The results were in line with many previous studies [15, 16, 21, 22], indicating that students were motivated self-regulated learning environments, engagement in class activities and peer interaction. Positive results also reflected that they could handle both online tasks and in-class activities.

The last issue for discussion was about autonomy perceptions that increased after the intervention. This is probably because the flipped classroom allows for more independence in learning than the traditional classroom. The knowledge is not only the main goal to reach, but how to learn is another important thing they should know.

They had more chances to manage their own learning. It can be concluded that students agreed to have more responsibility for independent learning. Although this is the first time for them to experience the flipped classroom, they can adapt themselves easily and seem satisfied with it. This finding was consistent with other studies in the literature review which seem to indicate that student gained higher autonomy after taking the flipped classroom (24, 25, 26].

6   Conclusion

The results of the analyses have important implications for learning and teaching as they suggest that to optimize the success of the flipped approach to language learning, there are many issues to be taken into consideration. The findings in this study suggest that flipping the classroom which blends the use of technology and traditional methods can be an alternative for future English courses since it is an invaluable learning experience for students. The positive feedback from students implies that they are open to accept new things. Such learning lets them have more control on their learning. In order to make instruction more beneficial and meaningful, teachers may need to choose the model that serves the context and support objectives of the course. Lecture videos preview is an important part since it helps students to understand the contents and grasp the right concept of doing assignments. Thus, creating video clips is a time-consuming part; teachers should have enough time to complete tasks and ask other teachers to give comments for adjustment before the course starts. In-class activities should increase both interactions among learners and enhance language performance. Apart from that, the selection of learning platform is important. Since effective technology will help promote interaction between students and teachers outside class, it is necessary to test it before putting it to use.

References

[1] Goodwin, B., & Miller, K. (2013). Evidence on flipped classrooms is still coming in. Educational Leadership, 70(6), 78-80.

[2] Milman, N. B. (2012). The flipped classroom strategy: What is it and how can it best be used? Distance Learning, 9(3), 85–87.

[3] Ash, K. (2012). Educators evaluate flipped classroom. Education Week, 32(2), 6-8.

[4] Hamdan, N., McKnight, R, McKnight, K., & Arfstrom, K.M. (2013). A review of flipped learning. Flipped Learning Network. Retrieved from http://www.flippedlearning.org /cms/lib07/ VAO1923112/Centricity/Domain/41 /LitReview _FlippedLearning.pdf

[5] Garrison, D. R., & Kanuka, H. (2004). Blended learning: Uncovering its transformative potential in higher education. Internet and Higher Education, 7, 95-105. https://doi.org/10.1016/j.iheduc.2004.02.001

[6] Bergmann, J., & Sams, A. (2012). Flip your classroom: Reach every student in every class every day. Washington, DC: Internal Society for Technology in Education.

[7] Egbert, J., Herman, D., & Lee, H. (2015). Flipped instruction in English language teacher education: A design-based study in a complex, open-ended learning environment. Teaching English as a Second or Foreign Language, 19(2). Retrieved from http://www.teslej.org/pdf/ej74/a5.pdf

[8] Reynard, R. (2007). Hybrid learning: Challenges for teachers. T.H.E. Journal. Retrieved from http://thejournal.com/articles/2007/05/17/hybrid-learning-challendges-for-teachers.aspx?page=2.

[9] Galway, L. P., Corbett, K. K., Takaro, T. K., Tairyan, K., & Frank, E. (2014). A novel integration of online and flipped classroom instructional models in public health higher education. BMC Medical Education BMC Med Educ, 14(1), 181. The Flipped German Classroom (PDF Download Available). Available from: https://www.researchgate.net/publication/284180566_The_Flipped_German_Classroom [accessed Sep 29, 2017].

[10] Davies, R. S., Dean, D. L., & Ball, N. (2013). Flipping the classroom and instructional technology integration in a college-level information systems spreadsheet course. Educational Technology Research and Development, 61(4), 563–580. https://doi.org/10.1007/s11423-013-9305-6

[11] Enfield, J. (2013). Looking at the Impact of the Flipped Classroom Model of Instruction on Undergraduate Multimedia Students at CSUN. TechTrends, 57(6), 14-27. https://doi.org/10.1007/s11528-013-0698-1

[12] Kong, S. C. (2014). Developing information literacy and critical thinking skills through domain knowledge learning in digital classrooms: An experience of practicing flipped classroom strategy. Computers & Education, 78, 160–173. https://doi.org/10.1016/j.compedu.2014.05.009

[13] Talley, C. P., & Scherer, S. (2013). The enhanced flipped classroom: increasing academic performance with student-recorded lectures and practice testing in a "flipped" stem course. (2013).The Journal of Negro Education, 82(3), 339-347. https://doi.org/10.7709/jnegroeducation.82.3.0339

[14] Mason, G. S., Shuman, T. R., & Cook, K. E. (2013). Comparing the effectiveness of an inverted classroom to a traditional classroom in an upperdivision engineering course. IEEE Transactions on Education, 56, 430–435. https://doi.org/10.1109/TE.2013.2249066

[15] Hung, H. T. (2015). Flipping the classroom for English language learners to foster active learning. Computer Assisted Language Learning, 28(1), 81–96. https://doi.org/10.1080/09588221.2014.967701

[16] Moffett, J., & Mill, A.C. (2014) Evaluation of the flipped classroom approach in a veterinary professional skills course Advances in Medical Education and Practice, 5, 415-425. https://doi.org/10.2147/AMEP.S70160

[17] Chen, Y., Wang, Y., & Chen, N. S. (2014). Is FLIP enough? Or should we use the FLIPPED model instead? Computers & Education, 79, 16–27. https://doi.org/10.1016/j.compedu.2014.07.004

[18] Gilboy, M., Heinerichs, S., & Pazzaglia, G. (2015). Enhancing Student Engagement Using the Flipped ClassroomJournal of Nutrition Education and Behavior, 47(1), 109-114.

[19] McLaughlin, J. E., Roth, M., Glatt, D. M. Gharkholonarehe, N., Davidson, C. A., Griffin, L. M., Esserman, D. A., & Mumper, R. J. (2014). The flipped classroom: a course redesign to foster learning and engagement in a health professions school. Acad emic Med icine, 89, 1-8. https://doi.org/10.1097/ACM.0000000000000086

[20] Strayer, J. F. (2012). How learning in an inverted classroom influence cooperation, innovation, and task orientation. Learning Environment Research, 15(2), 171-193. https://doi.org/10.1007/s10984-012-9108-4

[21] Tune, J. D., Sturek, M., & Basile, D. P. (2013). Flipped classroom model improves graduate student performance in cardiovascular, respiratory, and renal physiology. Advanced Physiology Education, 37, 316-320. https://doi.org/10.1152/advan.00091.2013

[22] Ferreri, S. P., & O'Connor, S. K. (2013). Redesign of a large lecture course into a small-group learning course. American Journal of Pharmaceutical Education, 77(1), 122-142. https://doi.org/10.5688/ajpe77113

[23] Missildine, K., Fountain, R., Summers, L., & Gosselin, K. (2013). Flipping the classroom to improve student performance and satisfaction. Journal of Nursing Education, 52(10), 597–599. https://doi.org/10.3928/01484834-20130919-03

[24] Benson, P., & Voller, P. (Eds.). (2014). Autonomy and independence in language learning. New York, NY: Routledge. https://doi.org/10.4324/9781315842172

[25] Zainuddin, Z., & Perera, C. (2017). Exploring students' competence, autonomy and relatedness in the flipped classroom pedagogical model. Journal of Further and Higher Education. August, 1-12. https://doi.org/10.1080/0309877X.2017.1356916

[26] Han, J. Y. (2015). Successfully flipping the ESL classroom for learner autonomy. New York State TESOL Journal, 2(1): 98-109.

[27] Al-Kathiri, F. (2015). Beyond the Classroom Walls: Edmodo in Saudi Secondary School EFL Instruction, Attitudes and Challenges, English Language Teaching, 8(1), 189-204.

[28] Arroyo, G. (2011). On-Line Social Networks: Innovative Ways towards the Boost of Collaborative Language Learning," ICT for Language Learning (4th ed.), Retrieved from http://conference.pixelonline.net/

[29] Kandappan, B., Jaykumar V., & Fukey, L. (2014). A Study on Student Preference towards the Use of Edmodo as a Learning Platform to Create Responsible Learning Environment. Procedia-Social and Behavioral Sciences, 144, 416-422. https://doi.org/10.1016/j.sbspro.2014.07.311

[30] Wichadee, S. (2017). A development of the blended learning model using Edmodo for maximizing students' oral proficiency and motivation. International Journal of Emerging Technologies in Learning, 12(2), 137-154. https://doi.org/10.3991/ijet.v12i02.6324

[31] Mehring, J. (2016). Present Research on the Flipped Classroom and Potential Tools for the EFL Classroom. Computers in the Schools, 33(1), 1-10. https://doi.org/10.1080/07380569.2016.1139912

[32] Estes, M. D., Ingram, R., & Liu, J. C. (2014). A review of flipped classroom research, practice, and technologies. International HETL Review, Volume 4, Article 7, Retrieved from https://www.hetl.org/feature-articles/a-review-of-flipped-classroom-research-practice-and-technologies.

[33] Allen, I.E., & Seaman, J. (2006). Making the Grade: Online Education in the United States, 2006. Needham, MA: Sloan Consortium.

7　Authors

Busaya Santikarn is an assistant professor in the English teaching filed. She is now working as a full-time lecturer at Language Institute, Bangkok University, Thailand. Her areas of research interests are motivation in learning English and students' learning styles.

Saovapa Wichadee is an associate professor and now is working as a full-time lecturer at Language Institute, Bangkok University, Thailand. Her research interests include teaching methodology in EFL, learners' characteristics, and teacher self-development. Her latest scholarly work focuses on the use of social networks and technology in language teaching.