

#### Learning English grammar through flipped learning

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This study examines the effect of flipped learning on English as a Foreign Language (EFL) learners' grammar. One hundred thirty-two first year university students, from four intact Freshman English classes, were divided into a flipped learning group (FLG) and a traditional instruction group (TIG). The two groups followed a weekly two-stage process. The FLG started with the individual space: the time and place learners complete a given task. They then moved on to the group space. The TIG, however, started with the group space, and moved on to the individual space. The individual work occurred outside the classroom, whereas the group work occurred in class. The treatment period was over 10 weeks. The study focused on the extent to which language learners' experience of flipped learning or traditional instruction reinforced their English grammar learning. To collect data, both the FLG and CIG were given pre- and post- grammar tests. In addition, the FLG was asked to complete a 16-item survey on their perceptions of learning grammar through flipped learning. Findings indicate that the flipped learning programme was more effective in teaching English grammar than traditional instruction. The results of the post-test reveal a statistically significant difference between the two groups, (t = 8.21, p < .001), with a large effect size (Cohen's d=1). In addition, the survey analysis revealed the FLG participants' satisfaction with flipped learning in terms of online material, in-class discussions, and other benefits.

**Key Words:** Flipped learning; English as Foreign Language (EFL); grammar; cooperative learning; technology-enhanced language learning (TELL); Taiwan

#### Introduction

Flipped Learning is an educational approach in which the conventional order of receiving knowledge is reversed. In flipped learning, the initial stage of receiving knowledge starts before attending class, when students study the teacher-assigned materials and complete their assignments. Afterwards they enter class to reinforce what they have covered prior to class (Flipped Learning Network, 2014). Researchers and teachers have successfully implemented flipped learning in different courses from various disciplines and areas, requiring skills practice or mere recitation of content. For example, flipped learning has been incorporated in algebra, biology, computer programming, engineering, information and communications technology (ICT), medical education, and multimedia production.

In the area of English as a foreign language (EFL), flipped learning has been implemented to improve students' knowledge of English idioms (Chen Hsieh, Wu, & Marek, 2017); and to promote students' active learning in terms of becoming more willing to communicate, enhancing their speaking skills, and increasing their satisfaction with the flip approach (Hung, 2017). The effects of flipped learning have also been investigated in other EFL-related areas, such as: English speaking (Li & Suwanthep, 2017), English writing (Ahmed, 2016), reading comprehension (Abaeian &

Samadi, 2016), English pronunciation (Zhang, Du, Yuan, & Zhang, 2016), and translation (Shu, 2015).

Flipped learning changes the role of learners and instructors. Hung (2017) recommended an acquisition-rich environment where students can benefit from both fluency and accuracy. This suggests that teachers should design syllabi which cover both meaning negotiation and linguistic instruction. This study endeavours to investigate the extent to which teaching English grammar through flipped learning can affect the EFL learners' performance by examining the following research questions:

- 1. Were there any statistically significant differences between the flipped learning group (FLG) and the traditional instruction group (TIG) regarding their English grammar performance?
- 2. How did the FLG perceive English grammar learning through flipped learning?

#### **Literature Review**

#### Flipped learning

The concept of flipped learning is sometimes labelled differently. Shih and Tsai (2017) report that it is sometimes referred to as blended learning, flipped classrooms, inverted learning/classrooms, or reversed instruction. Osguthorpe and Graham (2003) declare that such an educational approach combines face-to-face and online learning to enhance students' performance on a given subject. Flipped learning requires teacher and students to embrace a sustainable change in terms of technology acceptance and use, learning-teaching belief, and learning-teaching responsibility. In flipped learning, teachers make their course materials available to students *before* class. Students study the materials and enter class prepared to meet the course requirements. They should take responsibility for their own learning both in and outside of class. They will have the opportunity to apply the concepts covered in their preparation and reinforce their gained knowledge during class. However, Chen, Chen, and Chen (2015) cautioned against assuming that students are ready to actively embrace their new educational roles in flipped learning. They raised teachers' awareness of passiveness in students and urged them to address such an issue.

Flipped learning restructures the way school courses are designed, organized, and presented. To illustrate, Li and Suwanthep (2017) examined the effects of flipped learning on the speaking ability of first year students learning English in a university in Thailand. The study lasted 12 weeks. They divided their 94 students into an experimental group and a control group. The flipped learning participants had to study grammar points and vocabulary items through online video lectures prior to their regular class. In class, they practiced English speaking by role-playing based on the knowledge they had gained online. The control group followed face-to-face instruction where they completed question-and-answer drills from the English textbook as speaking activities. Both groups had speaking pre- and post-tests. The results showed that the experimental group received higher scores than the control group in the speaking test. The authors suggested that implementing flipped learning in an English-speaking course would enhance the speaking skills of the learners. Ahmed (2016) explored the effects of flipped learning on the English writing ability of female students in their first year at a university in Saudi Arabia. He recruited 60 female students who were divided into a flip learning group and a traditional learning group. The programme ran for 15 weeks. The total scores of the post-writing test showed that the experimental group performed

significantly better the control group. The author concluded that flipped learning was effective in developing the writing skill of the learners.

Flipped learning has been effective in other areas of English learning. Zhang et al. (2016) studied the effectiveness of flipped learning on the teaching of pronunciation. The study was conducted at a university in the northern part of China. The participants formed two different classes, with 32 students in each class. The treatment lasted for one semester. The experimental group followed flipped learning with micro-lecture videos, which were about the shape of the mouth and the position of the tongue in producing English sounds. The control group followed the traditional teaching mode. The mean score for the post-test of the flipped learning group was 90.81 and for the control group it was 87.06, a difference of 3.75 points. This suggests that the flipped classroom mode was more effective than the traditional mode in teaching pronunciation. Shu (2015) investigated the effects of flipped learning on the translation competence of 60 sophomore students majoring in English. The author randomly divided the participants into experimental and control groups, with 30 students in each. The course was about translation criteria and lasted one year (72 periods). The results of the posttest on translation revealed a statistically significant difference between the average score of the experimental and control groups. Accordingly, the author reported that flipped learning could improve students' translation competence as well as their English comprehension. Kang (2015) conducted a study on the efficiency of flipped classrooms. He recruited 24 EFL university students for the experimental group and 42 students for the control group. The participants from both groups were compared in grammar and vocabulary knowledge by pre- and post-tests. The results revealed that the flipped classroom statistically significantly outperformed the control group in both areas.

The studies above suggest that flipped learning enables teachers to design and incorporate a variety of teaching strategies and learning activities, which can effectively influence student learning both inside and outside the classroom (Flipped Learning Network, 2014). For a flipped learning programme to foster quality improvements for students, instructors should pursue systematic and iterative activities (McLaughlin, White, Khanova, & Yuriev, 2016). Teachers should expand opportunities for their students' engagement in class in order to facilitate their transition from the simple concepts tackled before class, towards deeper understanding, critical thinking, and application of the newly gained knowledge. In addition, flipped learning develops learners' autonomy. Little (1991) states that learner autonomy is "a capacity - for detachment, critical reflection, decision making and independent action" (p. 4). Flipped learning provides learners with a suitable environment for developing and reinforcing their autonomy through individual cognitive development during the individual space and social interaction during the group space. The main idea of the flipped learning approach is to involve students as much as possible in their learning both inside and outside the classroom.

#### Methodology

#### **Participants**

The research design of this study is quasi-experimental. The participants were 132 eighteen-year-old Year-1 university students from four intact classes taking the same required *Freshman English* course at a private university in Taiwan. They were all non-English majors, studying in the departments of Arts and Design, Industrial Engineering and Management, and Mechanical Engineering; as well as the Bachelor of Business

Administration programme. They had learned English for 6 years in high school. Based on the performance of the university's annual mock TOEIC test, the participants scored an average of 405. No statistical differences were detected between the two groups. Their scores ranged from 370 to 465, which is equivalent to an A2 CEFR level. The participants attended a two-hour *Freshman English* course weekly for 18 weeks. Two teachers taught the four classes (see Table 1). The results of an oral class-survey revealed that students had never had any experience with flipped learning. The four classes were divided into two groups:

Table 1. Details about the FLG and TIG (N = 132)

Teacher	Robert	Teache	r: Mike
1st FLG	1st TIG	2nd FLG	2nd TIG
n = 34	n = 33	n = 33	n = 32
(19 male)	(17 male)	(16 male)	(16 male)
(15 female)	(16 female)	(17 female)	(16 female)
Tues	sday	Thur	rsday
8:10-10:00	10:10-12:00	8:10-10:00	10:10-12:00

Note: Teachers' names are pseudonyms.

FLG = flipped learning group, TIG = traditional instruction group

#### Data collection

The study lasted over 10 weeks: eight weeks for the treatment and two weeks for the pre- and post-tests. The participants were assessed on grammar in the pre- and posttests. The test covered: the ability to distinguish between the present and past tenses, the ability to distinguish between the present perfect and past tenses, conditionals types 1 and 2, and the passive. It contained 20 items: four questions on each of the selected grammatical categories. The pre-test and post-test were paper-based and were administered in Week 2 and Week 11, respectively, to measure students' development of English throughout the study. Two versions of the test were designed to act as preand post-tests (see Appendix B for some sample questions of the grammar pre-test and post-test). Two raters marked the tests. One was a senior English teacher at the same university, and the other was a doctoral student studying Teaching English to Speakers of Other Languages (TESOL). The inter-reliability of scoring the completed tests was  $\alpha$ = 0.87 for both tests. Moreover, the FLG were administered a survey to elicit the participants' perception of their grammar learning through flipped learning. The questionnaire items were based on a questionnaire (Appendix A) previously written by the author for another study (Bezzazi, 2019) which investigated perceptions about learning English public speaking through flipped learning. The re-used items can, therefore, be considered as having been piloted through that process. The current questionnaire consists of 16 items using a 5-point Likert scale (strongly agree, agree, neutral, disagree, strongly disagree). The questionnaire covers the following topics: online materials, in-class group discussions, the teacher's role in flipped learning, and overall benefits of grammar learning through flipped learning.

#### Study procedure

In Week 1, the teachers informed the students that the course materials would be online, and there would be no print book. The materials were a combination of texts and videos. The teachers selected an appropriate grammar package for the course. The university where the study was conducted used Portal as the learning management system. Students had to log onto *Portal* to access the materials, and to complete and upload their weekly assignments. Both groups followed a weekly two-stage process. The FLG started with the individual learning space, where students were required to study online materials and watch online videos about the selected topics. For the current study, the following grammatical categories were used: Present and Past tenses (Week 3-4), Present Perfect and Past tenses (Week 5-6), Conditionals Type 1 and Type 2 (Week 7-8), the Passive (Week 8-10). The participants also had to complete the related grammar exercises designed by the teachers. The FLG had to upload the completed assignments onto Portal one day before class so that the teachers could check the learners' work in terms of completion and progress. This first stage had to occur prior to class on a weekly basis. The participants had the option to complete their first task at their own pace, anytime, anywhere, and in their own way. They were informed that completing the homework before class was mandatory.

The group learning space was the second step for the FLG, in which students were required to engage in class group discussions. The weekly discussions provided an educational environment for the participants to interact with the teacher and classmates, raise and answer questions about the lecture content, clarify misunderstanding, and apply the newly gained and previous knowledge. To create such an environment, the teachers divided the FLG into flexible discussion groups of four students. Members were encouraged to change groups each week. The teachers set 30 minutes for the weekly group discussions. The participants cooperatively checked one another's completed assignment. They helped each other to correct mistakes and explain issues about a given grammar point. From Week 1, the teachers required all participants, FLG and TIG, to speak only English in class: when interacting with the teacher, with each other, and during any class activities. Students who failed to do so were repeatedly approached and reminded of the class rule.

The TIG started with the group learning space which was done in class. The teachers introduced the selected English grammatical category for the given week. They used PowerPoint and the Internet to show the related texts and videos to the students. The teachers instructed students to take notes, and explained any raised issues. The lecture usually lasted one whole period of 50 minutes. After a break, students were assigned grammar exercises, which they had to complete individually. This activity took 15 minutes. Afterwards, the class was divided into groups of four and they were allotted 10-15 minutes for group discussions during which they applied peer correction. Classmates had to collectively check each other's completed exercises, correct them, and explain any issues raised by a group member. The teachers circulated among students to provide assistance as needed. The second stage for the TIG occurred outside the classroom, at the individual learning space. The students had to complete their weekly post-lecture assignment, which they uploaded onto *Portal* for submission.

The FLG and TIG were provided with the same online materials and grammar exercises. They both followed two stages on a weekly basis during the study: individual learning space and group learning space. However, the order of the stages and medium of receiving information were different.

#### Data analysis

An independent *t* test was run to analyse the results of the pre- and post-tests to evaluate the FLG's and TIG's grammar. An additional paired *t* test was conducted to compare changes within each group. The questionnaire answers were analysed to examine the frequencies on the 5-point Likert scale.

#### **Results**

#### Evaluation of the participants' grammar knowledge

Table 2 shows the scores of the pre- and post-tests. No differences were detected in the proficiency level of FLG and TIG at the beginning, as they started their *Freshman English* course at the same level (t = -0.81, p = .419). However, both groups showed statistically significant improvement in their English grammar over the 8-week period. A paired t test showed that FLG gained 14 points in average, with [t = 42.77, p < .001] and TIG gained more than 8 points in average, with [t = 31.19, p < .001]. Furthermore, the results of the post-test reveal a statistically significant difference between the two groups, (t = 8.21, p < .001), with a large effect size (Cohen's t = 1).

Table 2. Independent t test of the pre- and post-tests for FLG and TIG

	FLG		TIC	TIG		16	
	M	SD	M	SD	t	df	Sig
Pre-test	67.52 (n=67)	6.16	68.37 (n=65)	5.83	-0.81	130	0.419
Post-test	81.58 (n=67)	4.72	76.69 (n=65)	5.08	5.73	130	0.000*

Note: Maximum score for each pre- and post-tests is 100. p<0.01

#### FLG's perception towards grammar learning via flipped learning

The results of the questionnaire demonstrate that the FLG held positive attitudes towards learning grammar through flipped learning. The questionnaire comprised 16 items, which were grouped into four categories: online materials, in-class group discussions, the teacher's role in flipped learning, and overall benefits of grammar learning through flipped learning. Results were analysed according to the categories they fall into (see Table 3).

Table 3. Analysis of the four categories within the questionnaire

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Quest	tionnaire Items	Agree– Strongly Agree	Neutral	Disagree– Strongly Disagree
Cates	gory 1: Online materials			
1.	Availability of online materials and requirement to study them prior to class	56 (83%)	11 (17%)	-
2-3.	was something new. Availability of online materials and requirement to study them prior to class compelled them to complete the task and helped them to enter the class prepared.	53 (79%)	10 (15%)	4 (6%)
Categ	gory 2: In-class group discussions			
4-5.	In-class group discussions were a place for students to increase their understanding of key concepts and share knowledge.	55 (82%)	6 (9%)	6 (9%)
6.	in-class group discussion helped students to share and seek knowledge with a low level of stress.	52 (78%)	9 (13%)	6 (9%)
7-8.	In-class group discussion helped students with social skills: learning how to communicate with group members and making new friends.	50 (75%)	6 (9%)	11 (16%)
	gory 3: The teacher's role in flipped learning Teacher's role in informing the students about the upcoming topic, reminding them to complete the task before class, and managing the class was important.	59 (88%)	-	8 (12%)
Categ	gory 4: Overall benefits of grammar learning the	rough flipped le	earning	
11-12	2. Flip Learning helped students retain gained knowledge and improve their course grades.	51 (76%)	8 (12%)	8 (12%)
13.	Flip learning affected the students' learning belief in terms of perceiving themselves as knowledge providers.	50 (75%)	10 (15%)	7 (10%)
14.	Students were asked if they were able and willing to incorporate flipped learning in	48 (72%)	12 (18%)	7 (10%)
15.	their other courses.  Students were asked if Flip Learning helped them build or strengthen their self-	61 (91%)	7 (9%)	-
16.	confidence. Students were asked whether they developed some aspects of autonomy learning.	34 (51%)	25 (37%)	8 (12%)

#### **Discussion**

# Research Question 1: Were there any statistically significant differences between the flipped learning group (FLG) and the traditional instruction group (TIG) regarding their English grammar performance?

Analysis of the post-test showed that there was a statistically significant difference between the FLG and TIG. The FLG scored 8 points higher. This significant difference indicates that implementing flipped learning to teach English grammar was more effective than the traditional instruction approach. This is consistent with the work of Hung (2017) who reported that the regular completion of homework prior to class resulted in saving students more class time to reinforce their knowledge about the topic in question; and of Bergmann and Sams (2012) who found that doing the weekly assignment prior to class was beneficial in terms of equipping the participants with the necessary information to contribute to the class discussion. It seems that flipped learning created an environment for cooperative learning, which allowed what Crouch and Mazur (2001) describe as an opportunity for participants to effectively engage with one another under the supervision of the instructor. The FLG participants did not just sit back and listened to the lecture, they had to interact with the teacher and one another. They became knowledge providers as well as knowledge consumers. The pre-class preparation resulted in students gaining the skills to deal with complex challenges and it provided them with some knowledge to share and questions to ask in class. The FLG participants were also able to learn from one another in their group discussions. The TIG, however, entered the class without such preparation. They, thus, spent most class time listening to the teacher's instruction on the selected topic. For them, class time was for receiving new information. That is why they could not save enough class time to apply what they have learned from the given lecture.

## Research Question 2: How did the FLG perceive English grammar learning through flipped learning?

Analysis of the survey results revealed that flipping the class was beneficial to the FLG participants. The students expressed their satisfaction with the following factors:

#### Online materials

Most of the participants experienced the usefulness of online materials. Providing the materials online and requiring students to study them and complete the related activities before class obliged them to complete the task and enter the class prepared. This finding is similar to the results reported by Chen Hsieh et al. (2017) who stated that the online material "had the highest mean score among all the…items, indicating that the participants recognized the usefulness of the materials created by the instructors" (p. 14).

#### *In-class group discussions*

Most of the students acknowledged the benefits of in-class group discussions. For them, the group discussions they had in class created an educational environment where they could: reinforce their understanding of key concepts; share the newly gained knowledge from the pre-class preparation; develop learning skills with a low level of anxiety; communicate with peers, and become willing to make friends with one another. This finding reinforces that of Doman and Webb (2014) about their participants' positive attitudes towards the implementation of flipped learning in their courses.

#### The teacher's role in flipped learning

In flipped learning, the teacher's role has changed, but it is still important. The FLG participants appreciated the instructor when he informed them about the upcoming topic and reminded them to complete the pre-class task. They also expressed the important role of the teacher in answering their questions, clarifying misunderstandings, guiding and encouraging students, and managing class.

#### Overall benefits

The FLG participants experienced other benefits of learning grammar through flipped learning. Most students declared that they were able to retain the knowledge they gained from their grammar course as well as achieve better course grades. Another effect of flipped learning was related to learning belief. The majority of the students believed their role as students changed. In their *Freshman English* course, they not only received knowledge from their teachers. They felt they were able to share knowledge with their teacher and their peers. Moreover, when asked about the possibility of using flipped learning in other courses, more than half of the students confirmed they were able and willing to do so. Finally, the participants were also asked about any signs of autonomous learning. Around half of the students claimed they did not completely rely on their teacher to find additional and related websites. They independently explored the Internet to search for more information related to their grammar course. This is consistent with the claim of Amiryousefi (2019, p. 10) that flipped learning can "enhance students' self-study skills and hence their autonomy."

#### Lessons learned from the study

This study suggests the following guidelines for the effectiveness of flipped learning:

- 1. The rules for effective application of flipped learning should be made clear to students from the very beginning.
- 2. The teacher and students should work together to set the rules that govern their class during a certain academic period.
- 3. The rules should be adhered to as strictly as possible.
- 4. Teachers should refrain from occupying most or all of class time with teacher talk.
- 5. Students must be given an opportunity to share their knowledge with one another and apply their newly learned concepts.
- 6. The teacher must observe students, circulate among them, listen to their group discussions, join the discussions, ask questions, give feedback, and clear up any misconceptions students might have.

#### Conclusion

This study demonstrates the possibility of implementing flipped learning in an EFL English grammar course. As used in this study, flipped learning was more effective than a traditional method of teaching. It trained students to take some responsibility for their learning both in and outside class. Prior to class, they studied the material individually, and in class they learned cooperatively. The FLG participants improved their grammar substantially. They also gained other skills related to social communication and some autonomous learning. EFL teachers need to develop professionally in order to expedite student learning. Teachers should make efforts to leave their comfort zone and learn

how to incorporate technology in their teaching. The majority of students, if not all, have access to technological devices as well as to the Internet. These findings can be motivating for teachers to flip their classroom.

This preliminary study is limited in its scope. It dealt with a limited number of grammatical categories, conducted a treatment over only 10 weeks, and examined only entry-level students. It would be useful to conduct further research with a wider range of grammatical items, over a longer period and with a wider range of student proficiency levels. It would also be interesting to look at the impact of flipped learning on success in longer written texts.

#### About the author

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## Appendix A: The questionnaire

## **Online materials:**

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Having the online material available and requiring students to study it prior to class is something new to me.	0	0	0	0	0
2. Having the online material available and requiring students to study it prior to class compels me to complete the task.	0	0	0	0	0
3. Having the online material available and requiring students to study it prior to class helps me to enter class prepared.	0	0	0	0	0

## In-class group discussion:

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
4. The in-class group discussion is a place for students to increase their understanding of the key concepts.	0	0	0	0	0
5. The in-class group discussion is a place for students to share knowledge.	0	0	0	0	0
6. The in-class group discussion is a place for students to develop new learning skills with low level of stress.	0	0	0	0	0
7. The in-class group discussion is a place for students to learn how to communicate with group members.	0	0	0	0	0
8. The in-class group discussion is a place for students to make new friends.	0	0	0	0	0

## Teacher's role in flipped learning:

Item	Strongly	Disagree	Neutral	Agree	Strongly
	Disagree				Agree
9. The teacher's instructions about the pre-class task are clear. (We need a brief introduction about the upcoming topic. We ask questions and the teacher responds).	0	0	0	0	0

10. The teacher's role in class is still important (reminding students about pre-class preparation, answering questions, clarifying misunderstandings, managing class, encouraging & guiding students).	0	0	0	0	0
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## Overall benefits of grammar learning through flipped learning:

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
11. Learning grammar through flipped learning has improved my retention of information.	0	0	0	0	0
12. Learning grammar through flipped learning has boosted my grade a lot in this course.	0	0	0	0	0
13. Learning grammar through flipped learning has changed my belief towards learning: (The teacher is not the only knowledge provider; students can be a source of knowledge, too.)	0	0	0	0	0
14. Learning grammar through flipped learning has inspired me to follow the same approach with other courses such as Statistics and Physics.	0	0	0	0	0
15. Learning grammar through flipped learning has increased my selfconfidence (I enter class prepared to contribute to class discussion).	0	0	0	0	0
16. Learning grammar through flipped learning has enhanced my learner autonomy. (In addition to the teacher's assigned task, I search more educational websites to look for more information; I do extra grammar exercises I found online; I also tend to spend more time on improving my English outside the classroom.)	0	0	0	0	0

## Appendix B: Sample questions of the grammar pre-test and post-test

Section 1 Rubric: This section tests your knowledge about "present and past simple tenses".
Pre-test sample question I always
Post-test sample question  Mom and Dad usually
Section 2 Rubric: This section tests your knowledge about "present perfect and past simple tenses".
Pre-test sample question They
Post-test sample question I
Section 3 Rubric: This sections tests your knowledge about "conditional type 1 & type 2".
Conditional Type 1
Pre-test sample question  If he
Post-test sample question  If it
Conditional Type 2
Pre-test sample question You cannot concentrate on your lesson now! If you

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st-test sample question
e (to be) in trouble
(to arrive) late.
ction 4
bric: This section tests your knowledge about "passive voice".
e-test sample question
is tree house (to build) by grandpa for more than
years.
st-test sample question
e 2017-scholarship