

## EVALUATING FLIPPED CLASSROOM FOR EMERGENCY TEACHING APPROACH IN EFL UNDERGRADUATE STUDENTS' ACADEMIC READING COURSE

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### Abstract

The issue of Flipped Classroom (FC) approach has been currently arguable, especially due to its practicality in new-setting during the sudden outbreak of Covid-19. This study attempts to assess the effectiveness of a FC approach in academic reading course in higher education context in Indonesia. It also explores the barriers and boosters that EFL undergraduate students experienced within the flipped learning. Applying a mixed-method research design, data were collected and analyzed from pre-test and post-test and TOWS (Threat-Opportunity-Weakness-Strength) analysis. Two groups of fourth semester students were the samples, 35 ones were involved in a Blended Learning (BL) setting in early 2020 and 23 ones in a Flipped Classroom (FC) in 2021. Those 58 students taking a compulsory 2 credit of Reading for Academic Purpose (RfAP) Course in English Department were taught the similar reading skills and tasks were compared. Through paired-samples t-test, their progress results indicate that both FC ( $p=0.03 < 0.05$ ,  $d=-0.70$ , medium effect size) and BL ( $p=0.00 < 0.05$ ,  $d=-1.06$ , large effect size) were statistically significantly effective. The independent-samples t-test was then used to compare their effectiveness. It was found that there was no statistically significant difference between the two groups ( $t[56]= 1.11$ ,  $p= 0.27$ ,  $d= 0.29$ , small effect size). However, the students in BL gained higher mean score than their counterpart in FC. TOWS analysis shows that FC needs more improvement due to technological-integrated issues, online learning essence, multi-tasking and testing, time management, and other socio-environmental constraints.

**Keywords:** blended learning, flipped classroom, pandemic Covid-19, reading for academic purpose, TOWS analysis

### 1 Introduction

The sudden outbreak of novel corona virus disease 2019 (COVID-19) in late 2019 and early 2020 had obliged all teachers and lecturers around the globe to reform their ways of teaching. Most of those in rural context are not in favor of this rapid change due to lack of preparation and supporting sources. The application of Flipped Classroom (FC) having been long employed by world's leading institutions has been one of few great choices to consider in Indonesia. Although FC is a type of Blended Learning (BL) having been recently utilized by universities in NTT, lecturers and students there are triggered and still struggling to adapt to this learning model during new-normal. While learners in BL commonly have a balanced, face-to-face instruction in class and online tasking

complements outside of class, students in FC should do in inverted way.

FC has become a buzzword in the last two decades and widely employed for years in several disciplines, including in EFL context. Considering flipping activities in face-to-face classrooms and independent study at home, this classroom model requires students to attain background knowledge through materials outside of class prior to a direct class meeting, and reserves teacher-facilitated in-class time for applying knowledge to solve real problems through discussion or problem-solving works [1-3]. Its broad applicability is compatible with some other well-known learning styles, such as, inverted classroom [4-7] and peer instruction [8,9]. Whatever term it might well suits, the focus of FC and

the other two is on students gaining first exposure prior to class.

The effective application of the FC in EFL setting has triggered several scholars' interest in field research and literature review. Integrated with technology, FC generally helps towards student-centered learning and generates engaging learning environment [10, 11,12]. It also provides students with ample opportunities for self-paced learning, knowledge retention, creativity and collaboration [13]. Besides, it provides students more time to practice their language through exercises and activities in the classroom [14-17].

In Indonesia context, some related literatures can be reviewed to have insights into EFL specifically concerned setting, skill, and context. This learning model is considered effective in refining writing ability of EFL students across their individual differences in learning [18,19]. Furthermore, it promotes an effective approach to enhancing students' listening skill, particularly for specific language testing [20]. Students speaking comprehensions through discussion, verbal interaction, and communication expertise are also well enhanced through this approach [21-23]. The affirmative feedbacks on its application were also provoked by learners. Nevertheless, almost all above references present several caveats for instructors before apply.

On the contrary, the general application of the FC has drawn serious drawbacks and caused practical problems. Several literatures claim that FC has been poorly conducted due to negative attitudes [24], unfamiliarity [23], technological issue [25], and almost has nothing to do with students' assessment [1]. In EFL context, despite its effective result, some scholars reveal its procedural setback. For examples, FC is sophisticated to apply at first time and rather making students uncomfortable and anxious [23,26,27]. Further, its material preparation and design are always time-consuming [17,28] and need high self-discipline and efficacy from both teacher and students [29,27,30]. Also, integrating FC with technology mostly faces internet

connection issue [27,31] and teachers or lecturers and students are not qualified enough to deal with technological devices [32,30].

Furthermore, with regards to EFL reading skill and recent pandemic context in Indonesia, FC is considered less effective by several researchers. One of the most obvious studies looking at this issue is Maharsi, Wijayanti, and Astari [33]. They explored how this approach impacted on students' reading comprehension and how students perceived it in their learning process. Using mixed-method design, the results indicated that students' achievement score in the traditional classrooms outweighed their counterpart in the FC. The success story of controlled group students was due to the benefit of teacher-led instructions and scaffolding. Although some students perceived FC as promoting independent, the drawback was related to their inconvenience in using technology in learning, task-related time management, and technology-related workload.

Reflecting on the double-edged-sword literatures of the FC applications above, therefore, it is crucial to re-evaluate the effectiveness of the FC each time when it is applied to a new setting, especially during pandemic era. This mixed-method study was conducted with the objective of evaluating the effectiveness and acceptability of the FC during early breakout of pandemic compared to the BL in undergraduate English Department at a private university in NTT Province, Indonesia. The research questions are described as follows.

1. Is there any difference in students' academic reading performance between the FC and the BL?
2. Do the students in the FC gain better score than those in conventional BL?
3. What are the EFL students' perceptions of the FC application in Reading for Academic Purpose course during Covid-19?

## 2 Method

This present study was a mixed-method study design combining quantitative and qualitative approaches for the broad purposes of a single study [34]. Employing Pretest-Posttest Control Group Design [35,36], participants were randomly assigned to two groups. They were pretested to get the quantitative data on the dependent variable. While the control group received a typical condition of what is normally practiced in learning (i.e. Blended Learning), the experimental groups received the experimental treatments through Flipped Classroom approach. At the end of the treatment period, both group participants were post-tested on the reading comprehension. Meanwhile, qualitative data were gathered from students' TOWS (Threat Opportunity Weakness and Strength) analyses after learning process to provide evidences on how they perceived the FC in reading activities.

An approval from the faculty was obtained, informed consent was also taken from all students, and study was conducted within two years from January 2020 to June 2021. A total of 58 students involved in the study. 35 fourth semester students enrolling Reading for Academic Purpose Course were set in Blended Learning classroom (control group) in 2020 and 23 fourth semester students in Flipped Classroom (experimental group) in 2021. The pre-test and post-test were administered in a form of a combined reading texts of TOEFL-like Reading Comprehension section from Longman Complete Course book and

Reading Section for IELTS from Cambridge English IELTS book. The total of questions in each test was 50 questions, 40 questions were multiple choices and 10 questions were short answers. The pre-test was administered at the beginning of the semester study and post-test at the end of semester as the final test.

The results of both tests were analyzed through *t*-test in SPSS instrument. Comparisons of learning outcome ratings across tests and groups were analyzed using paired sample *t*-test and independent sample *t*-test. Students' TOWS analyses were presented and discussed with the instructor. This analysis was then categorized based on barrier and booster themes. The thematic analyses were reasonably compared according to the central, needed issues.

## 3 Findings and Discussion

### *The procedure of the study*

Students in both settings were provided with essentially identical objectives and handouts before class. They were also taught and facilitated by the same instructor. In the BL setting, students had various activities in class, either mainly having lectures, working on assignments, or having problem- or case-based, small group discussions. On the other side, in FC setting students were reinforced with homework problems to discuss rather than lectures. Table 1 is the summary of the educational setting chronology provided for students in the BL and FC setting.

Table 1. Educational setting chronology for students in the BL and FC setting

Setting	Blended Learning	Flipped Classroom (during pandemic Covid-19)
Campus	Pre-test	Pre-test
Campus	<ul style="list-style-type: none"> <li>- Materials sharing</li> <li>- Take notes</li> <li>- Lecturing</li> <li>- Slide</li> </ul>	<ul style="list-style-type: none"> <li>- Flipping the class for Covid-19 response (40 minutes a day/ week for class meeting and 100</li> </ul>

	<p>presentation (all content and references was included)</p>	<p>minutes weekly online-scheduled meeting)</p> <ul style="list-style-type: none"> <li>- Online pre-class introduction and assistance (through Microsoft Teams and Moodle)</li> </ul>
Home	<ul style="list-style-type: none"> <li>- Assignment and</li> </ul>	<ul style="list-style-type: none"> <li>- Online lecture prior to class</li> </ul>

(online)	submission through Moodle and MsTeams application - Online discussion/chats	through MsTeams and instructional videos - Online materials reading, related quizzes and targeted exercises before class - Content-based information delivery through Moodle.
Campus	- Continuous explanation on teaching material and exercises - Problem or case-based, small group discussions - Correct responses validation and misconceptions clarification by instructor.	- Small amount of fast evaluation - Problem-based discussion and peer checking - Instructor's assistance and knowledge internalisation.
Home (online)	- Homework assignment	- Online lecture and guiding videos

	and submission through Moodle and Microsoft Teams application - Online reading learning	prior to class - Online materials reading - Quizzes
Campus	Post-test	- Post-test - TOWS analysis

**Statistical analysis**

To examine the difference between pre-test and post-test derived from both the FC group and BL group, a paired-samples *t*-test was utilized. The researcher compared the pre-test and the post-test after the experimental treatment. Tables 2 and 3 below present the SPSS outputs of the paired-samples *t*-test.

Table 2. Paired Samples Test (Paired Differences) of Flipped Classroom Experimental Group

Pair 1	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pre-Test FC- Post-Test FC	-11.652	16.500	3.440	-18.787	-4.517	-3.387	22	.003

Regarding the paired-samples *t*-test analysis above, it was found that there was a statistically significant difference between the pre-test and post-test scores in FC setting. It is shown that  $t[22]=-3.387$ ,  $p=0.003<0.05$ , and  $d=-0.70$ , medium effect

size (Cohen's *d* provides further evidence that will allow us to make a claim about the effect of the experimental treatment). The finding indicates that the flipped classroom approach moderately helped increase the students' academic reading performance.

Table 3. Paired Samples Test (Paired Differences) of Blended Learning Control Group

Pair 2	Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pre-Test BL- Post-Test BL	-12.714	11.992	2.027	-16.834	-8.595	-6.273	34	.000

Furthermore, it was found that there was also a statistically significant difference between the pre-test and post-test scores in BL setting. It is shown that  $t[34]=6.273$ ,  $p=0.000 < 0.05$ , and  $d=-1.06$ , large effect size. The finding indicates that the blended learning considerably increased the students' academic reading performance.

After that, the researcher used an independent-samples  $t$ -test to determine whether one mean is significantly different from another by comparing two means of scores from both groups. The statistical analysis is shown in table 4 below.

Table 4. The Result of the  $t$ -Test (Independent Sample) between Experimental and Control Groups

Score	Group	N	Mean	SD	$t$ -count	$p$ -value	$d$	Analysis
Pre-Test	Flipped Classroom	23	53.39	21.494	-0.848	0.400	0.21	Not significant - small effect size
	Blended Learning	35	57.06	11.316				
Post-Test	Flipped Classroom	23	65.04	16.252	-1.111	0.271	0.29	Not significant - small effect size
	Blended Learning	35	69.77	15.600				

From the table above it can be identified that students' background reading skill from the two separate groups is in similar level ( $p=0.400 > 0.05$ ,  $d=0.21$ ). The *Cohen's d* effect size for the pre-test shows small effect. Similarly, the result of post-test scores confirms that students from those two separate groups gained similar academic reading achievement level ( $p=0.271 > 0.05$ ,  $d=0.29$ ). The *Cohen's d* effect size for the post-test also shows small effect.

Therefore, it clarifies that all the statistical assumptions for the alternative hypothesis was violated in the data set. The Levene's test for equality of variances was examined to ascertain that both groups had equal variance. The post-test was not statistically significant ( $p=0.56$ ). It was found that there was no statistically significant difference between the two groups ( $t[56]=1.11$ ,  $p=0.27$ ,  $d=0.29$ , small effect size). Since the *Cohen's d* effect size was small, the experimental condition of flipped classroom approach was not

effective in improving students' academic reading skill. On the basis of this independent-samples  $t$ -test, it can be concluded that there is no statistically significant difference between the two groups after the experiment.

***The students' perceptions toward the use of flipped classroom approach***

Students' perspectives of the application of FC approach during Covid-19 era were taken from their TOWS analysis. The analysis was discussed together with the instructor to help summarize the data from unnecessary repeated theme. The table 5 below provides few topics based on students' experiences and understanding. The thematic analyses of threats and weaknesses are described as the barrier and the opportunities and strengths as boosters.

Table 5. The TOWS thematic description of the FC during Covid-19 critical time

Threats	Opportunities		
<ul style="list-style-type: none"> <li>• Ongoing threat of Covid-19 spread</li> <li>• Knowledge transfer mainly relying on videos</li> <li>• Obligation to meet the scheduled tasks and changing curriculum</li> <li>• Potential grow of plagiarism in online tasking</li> <li>• Students' overdependence on traditional classroom</li> <li>• Low bandwidth and unstable internet connection</li> <li>• Inconsistent electricity power supply during pre-class learning</li> <li>• Instability of learning time during Covid-19</li> </ul>	<ul style="list-style-type: none"> <li>• Easy access at any time and location</li> <li>• More students' creativity in learning</li> <li>• Adjustment to ongoing development and practice of flipped classroom and online learning</li> <li>• Availability of technological support for flipped teaching</li> <li>• Parental and social involvement help monitor pre-class learning</li> <li>• In line with ongoing, adequate provision of internet access in NTT Province by the Ministry of Communication and Information</li> <li>• In line with university growing plans trend towards online learning, blended learning, and flipped learning adoption</li> </ul>	<ul style="list-style-type: none"> <li>• multimedia resources during pre-class due to poor internet speed and connectivity and inadequate support services</li> <li>• Students were baffled during discussions and stressful due to limited time on academic reading assignments</li> <li>• The reading class advances slowly because of limited in-class hours</li> <li>• Technical issues: difficulties in downloading course materials, slow internet accessibility, and rampant interruption sessions during online discussion.</li> <li>• Students' feeling of isolation of lively social interaction with peers and instructor during pre-class.</li> <li>• Some introvert students find it inconvenience adapting to collaborative in-class learning</li> <li>• Poor economic background students faced difficulties in accessing or adapting into the online learning component in pre-class</li> </ul>	<ul style="list-style-type: none"> <li>• times of replay</li> <li>• They can review the teaching objectives through Moodle during pre-class.</li> <li>• Cost-effectiveness: no need for hard copy reading materials or paper test</li> <li>• students can easily access their scores and feedback from instructor in the online gradebook after online quizzes</li> </ul>
Weaknesses	Strengths		
<ul style="list-style-type: none"> <li>• Anxiety and overwhelming by new things to learn/ decreased demand for technology</li> <li>• FC is not useful for some students' learning process</li> <li>• Difficulty in time management: given weak understandings and poor memories, students are unable to complete the exercises on time and on their own.</li> <li>• Trouble viewing</li> </ul>	<ul style="list-style-type: none"> <li>• Pre-class through Moodle motivates self-management to do assignment and less distracting situation</li> <li>• FC encourages students to optimize their in-class time for significant activities</li> <li>• Numerous online learning sources for reading practice and test simulation</li> <li>• Students can voluntarily arrange their time for spare-time studying and thinking</li> <li>• They can control the video progress and</li> </ul>		

From the table of TOWS analysis above, it can be discussed some barriers affecting students reading performance and

boosters for better improvement of FC in EFL students' Reading for Academic Purpose Course, especially during pandemic critical time.

### ***Barriers and Boosters***

Ongoing threat of Covid-19 pandemic has been affecting students learning situation and condition. Due to limited face-to-face teaching learning time, the University has established more hours for online lecture at home. This inspired the instructor of RfAP course to implement flipped classroom. The application of FC definitely left some issues to consider, especially related to students' experience and perceptions during pre-class and in-class learning. However, there are also some aspects that increase positive or desirable quality of flipped classroom. Those issues are redefined as the barriers and boosters of the FC application.

The first barrier is students' resilience to change. Students' overdependence on lecturing classroom makes them believe that their 'first exposure' was only gained through traditional direct learning. They assumed that traditional lecturing is better at creating lively peers interaction, supporting mutual teamwork, building social-emotional relations and improving better learning outcomes than does it in flipped classroom. They actually agreed to the idea of having additional video lecturing and e-material to prepare them before the class, but they did not really see the meaning behind that pre-class activity. Some introvert, low motivated students also experienced isolation and inconvenience to adapt to collaborative in-class learning within FC.

Despite its lower impact on EFL students' academic reading comprehension, the first boost is they could perceive usefulness. FC in fact offers flexibility, accessibility, and efficiency in learning for the majority of students. Combining the technology and face-to-face learning allowing students to be the centered of the learning process, FC was able to develop students' attention and interest in learning. In relation to the novel application of national curriculum in higher education, this

approach successfully ignited students' interest in learning supporting the freedom of learning pace that is up to the learner. The accessible way of learning regardless of location is also an inspiring output of this learning model.

The second obstacle to reflect is inability to self-learning management during pre-class activities. Not all students were independent and convenient in flipped classroom approach, especially during pre-class. Several students were astounded by the intense preparation in the pre-class activities, such as, joining online meeting, watching video lectures, and learning or reading materials. Sometimes due to inadequate preparation they misunderstood the materials and were panicked about the workloads and deadlines of reading tasks. Furthermore, pre-class activities via Moodle as a preliminary learning approach become extra burden for several students. In fact they were easily getting bored and confused of what to do next even the instruction had been clearly provided in that application. Too many weekly instructions, videos, and scheduled reading tasks posted on the platforms caused them missing some of it and being absence in completing them. Moreover, individual and time limited-based reading tasks using very high Standard English language were frustrating for few students who were used to be collaborative in learning or overdependence on team work.

However, several students found their self-efficacy boosting during pre-class. The activities through Moodle application motivated their self-regulation and commitment to complete assignments. They can also voluntarily manage their time for spare-time studying, reading, thinking, and reviewing preparatory materials before in-class discussion. Addressing multiple learning platforms i.e. Moodle and MsTeams containing materials, learning resources, and tasks, these reduced students' reliance on teachers' explanations as sources of knowledge. In fact, the lecture-videos provided was an advantage for them in which they had a full control over playing, pausing, and rewinding the videos to match their own paces of learning. The pre-class

activity really activates their background knowledge and English reading skills.

The third barrier to consider is poor peer collaboration and communication with instructor during in-class activities. Classroom interaction should be more productive if students could communicate their problems face-to-face with the instructor and reflected them to the instructor and colleagues to seek common solution. In fact, were baffled during discussions and stressful due to limited time (40 minutes) and overload courses in only one day meeting for all courses they took (8-12 courses a day per week during covid-19). Also, students were not ready for the in-class activities because they had not watched the videos and completed the homework yet. Flipped classroom could be successful if a clear, consistent and constant communication intertwined between instructor and students [37], however, in fact students found it problematic to communicate with the instructor due to unknown reasons. Additionally, limited in-class hours caused the class advances sluggishly. Instructor had to wait longer for students to finish their peer or group projects after demonstrating.

Nevertheless, FC in some respects boosts students' readiness and facilitates thorough discussion during in-class reading activities. Some students acknowledged that the activities were really useful and valuable for them because they found the in-class time more focused on feedback rather than the material explanation. Also, with the materials learned beforehand, students could feel more confident and readier when joining the in-class learning. It forced their mind to think and reflect more for optimal potentials. At the end, peer' and instructor's feedbacks helped them on their reading competence and understanding.

Another facet to contemplate is technological setbacks and technical issues. This drawback includes technological device possession and poor, unstable internet connection. Few students in this course did not own compatible mobile phone or computer for learning application. As a result, not all high quality video materials

were easy to access. The instructor found it difficult to create good compatible videos for all types of devices in pre-class activity. Technology may be a down pit for several instructors, but it is a demand for instructors to always learn something new and good for their class. In addition, students who were not tech-savvy had problems in learning under pre-class. Moreover, lack of internet data credit for personal use became a pressing matter for poor students who relied heavily upon technology and internet access.

On the other hand, FC should boost students to gain technological skills integrated in reading comprehension learning. As the impact of Covid-19 is growing, hi-tech devices can take central part for students to follow online lecture and to join online quizzes [38]. In fact, students in this course found numerous online learning sources for reading practice and test simulation across the internet. With online quizzes, students can easily access to their scores, progress, and feedback from instructor in the online gradebook. Moreover, FC enhanced online social interaction, communication, and collaboration. Some students liked to use video or chat to communicate their reading problems and share their own approach to those problems.

Last but not the least is social-environmental constraints during Covid-19 pandemic. Students learning in flipped classroom require more time, more resources, and active participation to achieve teaching-learning goal. Nonetheless, the current outbreak of pandemic made them stressful during learning and giving more priority on health and personal/family needs. Further, inconsistency electricity power in the Regency brought serious drawback to students learning connectedness in pre-class at home. Instability of learning time during pandemic also limited their physical interaction within in-class projects and tasks.

However, FC application in that setting would support government policy and university commitment to help reduce the spread of Covid-19. University and lecturers



have built digital learning environment and resources during pandemic time for preventing crowd and physical direct contact. Besides online learning, the University facilitated students with restricted face-to-face meeting. As this direct learning took limited time only, flipped teaching should be one of the best applications. Moreover, it is cost-effectiveness because of no need for hard copy reading materials or paper distribution during discussion and tests, which might help avoid physical contact among students and instructor. More time allocated for pre-class activities also admit parental and social involvement in monitoring students learning and moves during pandemic critical time.

#### 4 Conclusion

This current study examines the effect of flipped classroom and explores the barriers and boosters of the approach during pandemic time. To attain such goals, two groups of fourth semester students consisting of 35 in blended learning setting and 23 ones in a flipped classroom were taught the similar reading skills and tasks. The result of statistical analyses indicate that both FC and BL have positive effect on students' academic reading performance and that there is no statistically significant difference between the two groups ( $t[56]=1.11$ ,  $p=0.27$ ,  $d=0.29$ , small effect size). Although FC students benefited equally with the BL learners, they gained lower mean score than their counterpart. The TOWS analysis confirms that FC needs more development because of students' resistance to change, failure to self-learning management, poor collaboration and communication, technological setbacks, technical issues, and other socio-environmental constraints.

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