

# Flipped Classroom-Based Corpus for EFL Grammar Instruction: Outcomes and Perceptions

Nurul Lailatul Khusniyah<sup>1</sup> & Husnawadi<sup>2</sup>

<sup>1</sup> Tadris Bahasa Inggris, Universitas Islam Negeri Mataram, Indonesia

Correspondence: Nurul Lailatul Khusniyah, Tadris Bahasa Inggris, Universitas Islam Negeri Mataram, Indonesia.

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## Abstract

Although a wide array of studies has sufficiently documented the use of Flipped and Corpus learning methods in ELT context respectively, marrying both in EFL grammar classes remains scanty. To fill this gap, this collaborative action research (CAR) jointly designed and implemented flipped classroom-based corpus instruction involving an English grammar instructor to promote the EFL students' grammatical knowledge and documented their perceptions on how the learning model promoted their grammatical knowledge and the challenges they encountered at an Indonesian state Islamic University. Pre-, mid- and post-tests measuring the students' grammatical knowledge were administered, and an open-ended questionnaire and focus group discussion were respectively distributed and conducted to garner the qualitative evidence. The statistical evidence showed that there were statistically and practically significant grammatical knowledge gains at the end of the term. The qualitative evidence suggested that it was due to the adequacy of English input and feedbacks from their peers and the grammar instructor. The students also perceived that low internet bandwidth and a lack of understanding on the use of the Coca database were their primary learning barriers, while the grammar instructor found it more daunting to cater the instruction. This is the first study marrying both the pedagogical methods and provides the empirical evidence of its efficacy and feasibility for EFL grammar instruction. Limitations and recommendations for further studies are discussed.

**Keywords:** corpus, EFL, flipped classroom, English grammar

## 1. Introduction

Grammar instruction has always been replete with conflicting arguments over its importance and pedagogical approach in L2 classrooms since the past decades (Heift & Vyatkina, 2017). Although it has been sidelined following the emergence of the so called "Communicative Language Teaching" (CLT) that prioritizes meaning-focus instruction over form-focus instruction; and fluency over accuracy, this micro language skill remains a compulsory subject to be taught in the English as a Foreign Language Context (EFL), such as in Indonesian pre-service EFL programs. In this pedagogical context, English Grammar has been a compulsory course with two credit-hour or a minimum of 100 minutes a week. Its course names range from Grammar 1, Grammar 2, to Grammar 3, while others prefer to use slightly different terms, such as Basic English Grammar, Intermediate English Grammar, and Advanced English Grammar to explicitly show the foci of the instruction. Its primary goal is to equip the EFL teacher candidates with the ability to apply grammatical knowledge accurately, appropriately, and meaningfully in different communicative contexts, making them grammatically competent English teacher candidates, who will later become English teachers across the Indonesian schooling levels.

Nonetheless, the teaching of grammar at the English Language Education Training Program at a State Islamic University on the Island of Lombok Indonesia, where this study took place, has been inundated with traditional teaching approaches, such as drilling, Grammar Translation Method (GTM), Audio Lingual Method that often take multiple choice questions. Liu and Jiang (2009) assert that this often leads to the students' failure to accurately identify the time and reason for the use of certain Grammar in certain contexts (Liu & Jiang, 2009). Our preliminary observation found that most of the preservice teachers at the Islamic university could not apply their grammatical knowledge when writing their ideas in English, for instance, "*She has a many house*". The inadequacy of learning hours was supposed to be one of the major problems in that the students lacked a necessary input. Zein et al. (2020) found that the inadequacy of interaction between English lecturers and the pre-service teachers in the Indonesian higher education context was one of the pedagogical ordeals for the latter. Boulton (2017) and Lee and Wallace (2017) opine that input remains sparse in the EFL context, where English is not a means of day-to-day communication. In this teaching context, both instruction and exposure are required by promoting learners' interest and supplying adequate explanations and authentic examples of the target language to promote the expected language learning outcomes.

Drawing on the contextual barriers, a novel grammatical learning approach that can provide the necessary exposure to authentic language use and that can facilitate learning beyond the classroom is needed. Two prominent approaches to the teaching of Grammar are deductive and inductive. The former refers to the explicit instruction of grammar followed by examples of its use, while the latter takes the opposite direction, in which it begins with an example of the English texts whose grammatical patterns are to identify by the students. This implicit instruction concurs with the importance of comprehensible language input (Heift & Vyatkina, 2017). It has been associated with Corpus,

an extensive electronic database of English texts. Corpus affords the students with adequate language input (Gabrielatos, 2005) and authentic grammatical samples (Zareva, 2017). L2 instructors have pedagogically implemented this technologically driven learning for more than five decades in ELT classrooms (Heift & Vyatkina, 2017). This electronic database collecting a considerable amount of authentic English language use in various contexts benefits students in multitudes of ways: discovery learning promotes an authentic learning environment, independent learning, motivation (Çelebi et al., 2016; Liu & Jiang, 2009). Huston & Francis (2000) regard it as “Data-Driven Learning (DDL). The abovementioned authors outline five distinctive features of DDL: authenticity, contextual data, a great amount of data repertoire, systematic organization, and not annotated data. Due to its pedagogical advantages, English instructors have widely incorporated Corpus or corpora (plural) into their classrooms (Çelebi et al., 2016; Liu & Jiang, 2009).

However, the use of corpus alone is not adequate to address the contextual barrier for teaching English Grammar at the Islamic university because it does not enable the English grammar instructors to monitor students’ learning and use of language, particularly in the joint discussion beyond the classroom. For this reason, Flipped Classroom (FC), a variant of Blended Learning (BL) that inverts the mundane instruction, where students find a school learning environment at home through e-learning platforms and do the homework in the classroom was also employed (Mehring, 2016). FC has made its way to the ELT landscape since 2014 (Turan & Akdag-Cimen, 2019), and currently gains its popularity (Husnawadi, 2021).

Although studies using Corpus and FC have been respectively well documented, especially for the teaching and learning of English Grammar, e.g., (Boulton, 2017; Liu et al., 2009; Zareva, 2017); and (Afzali & Izadpanah, 2021; Lubis & Rahmawati, 2022; Mandasari & Wahyudin, 2021; Singh & Harun, 2016; Webb & Doman, 2016; Zakaria & Yunus, 2020), because the dual learning methods emphasize the importance of more student-centered learning (Heift & Vyatkina, 2017), the study marrying both pedagogical methods has hitherto remained under research. However, one study, to the best of authors’ knowledge, has provided empirical evidence of its efficacy by garnering students’ perceptions (Çelebi et al., 2016), yet it did not provide empirical evidence that show its effect on the grammar mastery of EFL learners.

Based on the contextual problems and gap in the literature, this study aimed to design, implement, and investigate the efficacy of applying the flipped classroom-based corpus for EFL grammar instruction, and examined its perceived contributing factors and students and instructor’ challenges. To this end, the following research questions were formulated:

1. Did the implementation of the flipped classroom-based corpus promote the EFL students’ grammatical knowledge?
2. If yes, how did the learning model enhance the grammatical knowledge according to the students?
3. What were the learning challenges faced by the EFL students and instructor regarding the implementation of the learning model?

## 2. Literature Review

### 2.1 Previous Studies on Corpus in ELT Context

Corpus has gained its popularity as a learning resource and approach in ESL and EFL contexts since 1987, marked by the emergence of the dictionary-based Corpus, Collins Cobuild (Gabrielatos, 2005). It was empirically proven to promote writing skills (Gilmore, 2009; Hegelheimer, 2006); Vocabulary (Yusu, 2014); or Grammar (Bridle, 2019; Liu & Jiang, 2009; Zareva, 2017), not to mention its theoretical discussion pertinent to the nature of Corpus, the what, how and why it is incorporated into ELT classroom. In the academic writing landscape, Gilmore (2009) and Hegelheimer (2006) unveiled that the majority of the students positively perceived the incorporation of Corpus inasmuch as it enabled them to discover errors in the use of the lexicogrammatical choices independently and to use authentic English. The application of Corpus in L2 classroom has also enriched the students’ vocabulary (i.e., Bridle, 2019; Yusu, 2014). Both studies unveiled that it could enrich the students’ English vocabulary.

In the realm of grammatical instruction, Corpus is not novel. Liu and Jiang (2009) investigated the impact of using Corpus and contextualized lexico-grammatical approach in the ESL and EFL contexts involving 224 participants comprising respectively 236 and 8 students and teachers. They uncovered that it could promote the students’ lexicogrammar, critical thinking, and discovery learning. Likewise, Zareva (2017) unveiled that the implementation of Corpus in the English grammar class at an American university could enhance their understanding on how to capitalize on the corpus data and motivate them to learn. It also emboldened them to deploy textual data that integrated research, teaching, and professional development.

### 2.2 Flipped Classroom in ELT Context

While FC has gained its prominence in such learning contexts since 2014 (Turan & Akdag-Cimen, 2019). Flipped Classroom (FC) was initially introduced by science teachers, Jon Bergmann and Aaron Sams from USA with their best-selling book entitled “Flip Your Classroom: Reach every student in every class every day” in 2012. The idea was to assist the students to learn beyond the classroom. Since then, FC has gained its prominence for the teaching of various English skills in the sphere of ELT, for instance English idioms (Hsieh et al., 2017); Writing (Adnan, 2017; Afrilyasanti et al., 2016, 2017; Husnawadi, 2021), not to mention its application in grammar classrooms (e.g., LI et al., 2017; Nicolosi, 2012; Moranski & Kim, 2016; Bezzazi, 2019). Hsieh et al. (2017) implemented FC to promote 48 Taiwanese students’ English idioms using LINE apps. It was found that their idiomatic knowledge significantly improved and motivated them to actively participate in the class. Likewise, (Adnan, 2017) Adnan (2017) and (Afrilyasanti et al., 2017) discovered that the use of FC significantly contributed to the writing skills development of the students. The inclusion of videos in the FC was perceived to contribute the development of the students’ conceptual knowledge (Afrilyasanti et al., 2017). Deploying Blog in the FC, Zainuddin

(2017) unveiled that the students were motivated to learn, encouraged them to actively engage in learning, afforded more time to learn through the mediated feedback discussion involving the lecturer and peers. (Husnawadi, 2021) employed flipped classroom mediated task for the teaching of essay writing during the post-earthquake on the island of Lombok Indonesia. The study discovered that the learning method engaged, motivated, and promoted the students' learning. It encapsulates that there is a possibility of implementing the FC during the emergency language learning situation.

In the realm of English grammar classrooms, FC has currently been buzzwords of ELT practitioners (i.e., Afzali & Izadpanah, 2021; Lubis & Rahmawati, 2022; Mandasari & Wahyudin, 2021; Singh & Harun, 2016; Webb & Doman, 2016; Zakaria & Yunus, 2020).

### 2.3 The Importance of Flipped Classroom-based Corpus Design

Drawing on the abovementioned studies, Corpus and FC have their respective pedagogical benefits towards ELT, especially in the context where exposure to the use of English remains inadequate, such as in Indonesia, particularly at the Islamic University, where this took place. Based on the discussion of the aforementioned published studies, the following rationales enumerate why the current study integrated both the technology-mediate learning approaches for English grammar teaching.

1. Corpus and FC can facilitate the necessary exposure or input of English used in the EFL context (Boulton, 2017) and (Mehring, 2018). Corpus affords Grammar learning through the authentic samples of textual data, while FC enables the mediation of learning beyond the classroom through an e-learning platform, Schoology, which the current study employed. FC could prepare the students via such an online learning environment before they get into the Face-to-Face (FTF) classrooms.
2. Corpus and FC are both digital technology-based learning approaches and recently become the trend for teaching English grammar (Heift & Vyatkina, 2017). FC in this context refers to Computer-Mediated Communication (CMC) as delineated by the above scholars.
3. Both have respective drawbacks. Corpus does not enable English instructors to monitor communicative use of the language and learning beyond the classroom, such as using videos and other additional materials, which FC can afford. On the other hand, FC is not text-based learning on its own. Therefore, both learning approaches are complementary in that they may provide more meaningful learning outcomes.
4. No previous studies marry both learning approaches that examine the complexities of the learning context and document both quantitative and qualitative data. (Çelebi et al., 2016) integrated both approaches, but only collected qualitative evidence, which implies that it is necessary to carry out further studies to fill this gap in the current literature. Likewise, (Zareva, 2017) advocates that research on the implementation of Corpus in the pre-service EFL teacher education program remains sparse.

## 3. Method

This study collaborative action research (CAR), a systematic and iterative research method, aimed to refine and promote English grammar instruction through a joint planning, enactment, and evaluation involving the researchers and the English grammar instruction (Burns, 1999) (Sagor, 1992). The use of CAR in this study was emboldened to solve the abovementioned pedagogical problems regarding the teaching and learning of English grammar at the preservice EFL program and to bring about greater learning gains. Although there is a variety of CAR phases, this study was anchored in the five CAR stages as coined by (Sagor, 1992), namely "problem formulation, data collection, data analysis, reporting of results, and action planning" (p. 10).

### 3.1 Data Collection and Analysis

#### 3.1.1 Quantitative

To answer the research question number 1 (RQ1), pre-, mid- and post-tests of Advance English grammar extracted from the instructor's textbook were administered and distributed to the students respectively before, mid, and after the treatment. There were 20 multiple choice questions measuring their grammatical knowledge, ranging from Adjective Clauses to Ellipses. Each correct question was scored 5, which accumulated a total of 100 for all correct answers. Mid-test was administrated on the eighth week of the course, which simultaneously became their Mid-Term test score. All the scores were inputted to SPSS 20 Software. In addition to the generation of the descriptive statistics, Dependent T-test was applied to unveil whether there was a significant gain of the students' grammar over time throughout the periods (Creswell, 2014; Field, 2009). In addition, Cohen's *d* test was carried out to measure its practical significant because it measures the degree to which the learning design affects the students' learning achievement (Lakens, 2013; Sullivan & Feinn, 2012).

#### 3.1.2 Qualitative

To answer the second research question (RQ2) and third research question (RQ3) pertinent to how the learning model promoted the students' grammatical knowledge and the learning challenges encountered by the students and the English grammar instructor respectively, this study garnered the data from multitude of sources for sake of triangulation, such as Focus-Group Discussion (FGD) involving 10 purposively selected participants and the English grammar instructor; and an Open-ended questionnaire was distributed to the students at the end of the class. The FGD and the Questionnaire were respectively written and carried out in Indonesian language to avoid misunderstanding and ease the students to smoothly respond to the given questions. The qualitative responses from FGD were recorded via a smartphone, transcribed, and translated into English involving two translating experts. All the qualitative data were analyzed using Braun and Clarke's (2016) thematic data analysis: understanding, coding, thematizing, reviewing, defining, naming and reporting the data.

To avoid bias and misinterpretation, all the findings were confirmed to the respective students and the English grammar instructor to figure out whether or not the data represent their intended meaning (Creswell, 2014).

3.2 Procedures

3.2.1 Participants

This study took place in an Advanced English course in the academic year 2019/2020 at an English language education program of an Indonesian state Islamic university. The class lasted for 16 meetings throughout the semester. It involved one class, A class consisting of 34 students. The reasons for choosing this class were because this study did not adopt pure experimental design that may involve the conventional class as a comparison. Also, the class was conveniently approached by the researchers and the students were willing to be the participants. Their English language skills ranged from pre-intermediate to intermediate levels given the mixed-ability classroom. This is also indicated by the grammar pre-test in this study.

3.2.2 Learning Design

Based on the contextual analysis and literature on FC and Corpus, the following flipped classroom- corpus succinctly illustrates how it was enacted for the teaching and learning of the English grammar (see Table 1). In FC context, most of the learning happens to be outside the classroom via a learning platform. In this class, the researchers and the grammar instructor used Schoology to facilitate the online instruction, while the students were assigned to do more practical tasks individually and collaboratively.

Table 1. Flipped Classroom-Based Corpus Learning Design for English Grammar Instruction

FLIP Principles	Online (70% learning)	Face-to-Face (30% learning)
Flexible learning environment	Independent learning of concept Watching Video English Corpus Pattern Inductive Approach	Guided group work Deductive Approach
Language learning culture	Online Grammar Discussion Watching videos Exercises Inductive Approach	Guided Discussion Deductive Approach
Intentional linguistic content	Corpus dan Video Online Grammar Discussion Inductive Approach	Guided Discussion Deductive Approach
Professional language educator	Timed-Grammar quizzes Online Grammar Discussion Inductive Approach	Collaborative Grammar Exercises Deductive Approach

We decided to use Corpus, Corpus of Contemporary American English (COCA), which could be accessed freely via <https://www.english-corpora.org/coca/> because it has been widely used in the study of Corpus and ease of use. It also generate diverse language contexts and links (Zareva, 2017). In addition, for the online Learning Management System (LMS), we deployed Schoology, which is accessible via <https://www.schoology.com/>. The reasons for choosing this LMS was because the students were already used to it and eased the English grammar instructor to administer grammar exercises, Quizzes, tests, share materials, such as readings, videos, and communicate with his student. It was also accessible via a mobile phone. The students

4. Results

4.1 Effect of Flipped Classroom-based Corpus Learning Model on the Students' Grammatical Knowledge

The descriptive statistics showed that the students' average grammar score was 42.79 ( $M=42.79$ ), slightly increased to ( $M=47.8$ ) as seen the Table 2.

Table 2. Descriptive Statistics of Pre- and Mid-Tests

	Min.	Max.	Mean	SD
Pre-Test	20	70	42.8	13.88
Mid-Test	25	75	47.8	11.82

N: 34

To unveil whether there was a significant gain, a dependent t-test was carried out using SPSS 2.0. The statistical evidence indicated that there was a significant gain on the students' grammatical mastery after week eight ( $M=47.8$ ,  $SD=11.82$ ) compared to the pre-test ( $M=42.8$ ,  $SD=13.88$ ),  $t(33)=-4.56$ ,  $p=.000$  (see Table 3). Despite its being statistically significant, it was not practically significant given the effect size value ( $d= 0.39$ ) (Lakens, 2013; Sullivan & Feinn, 2012). This indicates that the implementation of the flipped classroom-based corpus was not practically useful. This was probably because of the short period learning that the students went through.

Table 3. T-Test Results Comparing Pre- and Mid-Test

Variables	t	df	P	Cohen's d
Pre-Test Mid-Test	-4.56	33	.000	0.39

N: 34

On the second phase of this study, however, after week sixteen at the end of the term, there was a significant increase on the students' grammatical mastery given the *Mean* score difference between the pre-test ( $M=42.8$ ,  $SD=13.88$ ) and post-test ( $M=62.7$ ,  $SD=8.43$ ) was about 20 (see Table 4).

Table 4. T-Test Results Comparing Pre- and Post-Tests

Variables	t	df	P	Cohen's d
Pre-Test Post-Test	-15.34	33	.000	1.73

The Cohen's *d* value ( $d=1.73$ ) showed practical significance of the learning model, which means that the enactment of the learning model could practically accelerate the students' learning gain in grammar significantly.

#### 4.2 How the Implementation of the Flipped Classroom-based Corpus Promoted the Students' Grammatical Knowledge

To unveil how the learning model promotes the students' grammatical knowledge, the qualitative evidence from the FGD and open-ended questionnaire showed that the learning model provided the students' extensive grammatical input, peer, and teacher feedback.

##### 4.2.1 Extensive Grammatical Input

Most of the students from the FGD and open-ended questionnaire stated that they learned more from the videos shared by the lecturer followed by the discussion in Schoology. In addition, they also admitted that they gained more grammatical knowledge from their search in the COCA American English corpus. These are illustrated in the following excerpts:

"...I learn a lot from the discussion forum in Schoology. All the materials shared and explained in the forum help me improve my understanding about grammar, not to mention watching the native English-speaking teachers who explain the topic in the videos. Hence, I also learn listening at the same time..." [Student 5, open-ended questionnaire]

Similarly, the student 12 also stated the same opinion.

".... The videos shared and the discussion forum have made me learn more about grammar. I learn not only in the class but also outside the class, which is good for me..." [Student 12, open-ended questionnaire]

"My grammatical knowledge improved significantly, particularly related to the use of collocation when I surfed in the COCA America. I know what words followed and proceeded by another, such as "different from", which I assumed to be followed by "with" .... But now I knew about it..." [Student 20, open-ended questionnaire]

Other qualitative evidence from the FGD also showed that the use of videos followed by the discussion and surfing on COCA America helped the students improve their grammar.

"I learn a lot more about the grammar from the videos that the lecturer shared and discuss about the contents in Schoology. Likewise, I learn more about collocations, such as the words "different..., afraid... in the COCA America". [Student 3, FGD pada 20 July 2020]

"The Coca America helps me better at using certain authentic words, not to mention the videos shared by the lecturer. I learn a lot because the concept is presented by native speakers in the videos. Plus, further explanation of the grammatical concepts from the lecturer in the class improves my understanding". [Student 3, FGD pada 20 July 2020]

##### 4.2.2 Peer and Teacher Feedback

The students also perceived that the learning model enabled them to learn from the feedback from their peers and lecture as illustrated in the following excerpts.

"...and I learn more about grammar from the feedback from my friends and the lecturers. They help correct my mistakes both in FTF and online class via Schoology ... " [Student 2, open-ended questionnaire]

"My knowledge about the use of certain grammatical formula is improved because of the discussion with and correction from my friends in both FTF and online class ...." [Student 9, open-ended questionnaire]

"I am happy to be guided and given feedback by my lecturer personally because it does not make me shy; hence, I could better understand the grammatical concept ... " [Student 17, open-ended questionnaire]

This is also evidenced in the excerpts taken from the FGD.

".... I learn quite a lot from my friends' and lecturer' feedback ... " [Student 2, FGD pada 20 July 2020]

"...the feedback from both my friends and lecturer in Schoology and classroom promote my understanding of the grammatical concept and how to use in writing...." [Student 6, FGD pada 20 July 2020]

From the excerpts above, it can be concluded that the flipped classroom-based corpus learning could escalate the students' grammar through the affordances, such as the adequacy of grammatical input and feedback from their peers and lecturers.

#### 4.3 The Challenges Encountered by both the Students and the English Grammar Instructor

The qualitative evidence generated from the open-ended questionnaire, FGD and respectively involving the students and the English grammar instructor, unveiled that there was not a significant learning setback pertinent to the application of this learning design. The students' primary challenges were the instability of the internet bandwidth and lack of understanding on the use of Corpus, while the English grammar instructor felt that he had to invest more time to prepare for the teaching and learning materials, in other words, overload tasks. These are illustrated by the following sample excerpts:

##### 4.3.1 The Challenges Encountered by the Students

###### 4.3.1.1 Low Internet Bandwidth

*"Overall, I think all was running well, yet the internet signal was sometimes low to access the video...."* [Student 1, open-ended questionnaire]

*"Overall, everything was okay, but the internet connection was sometimes disrupted....."*

[Student 9, open-ended questionnaire]

The data from the FGD also showed that the students had no significant barriers, yet it was only a matter of a lack of internet connection and running out of balance or internet data because they often used their personal internet data transferred or connected via their mobile phones, particularly when accessing the videos.

*"For me, there were no learning barriers other than the sometimes instable internet bandwidth when accessing the videos, the teacher shared in Schoology...."* [Student 4, FGD 20 July 2020]

*"...That was true that sometimes I ran out of balance when accessing the online learning..."*

[Student 7, FGD 20 July 2020]

###### 4.3.1.2 A Lack of Understanding on the Use of Corpus

*"In general, what I found challenging for me is how to use the American Coca. I was completely confused.....but I asked my friends to help me ....."* [Student 3, open-ended questionnaire]

*"I think my problem was none other than ways to use Corpus at the first time. I found it confusing to use....."* [Student 20, open-ended questionnaire]

Similarly, the excerpts from the FGD unveiled similar narratives.

*"For me, at the outset, using COCA America was confusing. It took time for me to overall understand how to use it ....."*  
[Student 6, FGD 20 July 2020]

*"...mmm..I think how to use COCA America is my challenge at the first time because I it was new for me ....."* [Student 2, FGD 20 July 2020]

###### 4.3.1.3 The Challenges Faced by the English Grammar Instructor

In addition to the perceived effectiveness of this learning design, the English grammar instructor admitted that he felt hectic to prepare for the learning materials (Overload Task).

*"To me, there was no meaningful challenge. I, however, thought that despite being positive for the students' learning, it was more challenging for me because it took much time to prepare and require more learning materials...."*

[English language Grammar instructor, Interview on the 25 July 2020]

## 5. Discussion

The overall aim of this study was to design, implement, and investigate the efficacy of applying the flipped classroom-based corpus for EFL grammar instruction, and examined its perceived contributing factors and students and instructor' challenges. This study unveiled that the flipped classroom-based corpus for EFL grammar instruction was effective in promoting the students' grammatical knowledge given the significant gains over time throughout the semester. This finding accords with the previous studies respectively using Corpus and FC for the teaching and learning of English grammar (e.g., Liu & Jiang, 2009; Zareva, 2017); and (Afzali & Izadpanah, 2021; Lubis & Rahmawati, 2022; Mandasari & Wahyudin, 2021; Singh & Harun, 2016; Webb & Doman, 2016; Zakaria & Yunus, 2020). The corpus-based learning activities, such as exploring the collocations and grammatical contexts, engaged the students in the discovery learning of the grammatical features. This learning experiences enabled the students to independently learn beyond the classroom wall. This finding also echoes Liu and Jiang (2009) and Zareva (2017), for instance, who uncovered that the use of Corpus for English grammar instruction could promote the students' 'critical thinking, discovery learning and grammatical mastery. In addition, Singh and Harun (2016) unveiled that use of FC for learning English grammar was overall perceived positive by the students as it enabled them to learn more flexibly. Similarly, it also accords with recent studies, reporting that the students gained significant increase in grammatical

knowledge (see Lubis & Rahmawati, 2022; Mandasari & Wahyudin, 2021; Webb & Doman, 2016). This is justifiable because the students could capitalize on the multimodal affordances of the FC, such as videos as the supplementary to the English grammar instructor’s explanation about the grammatical concepts. For example, the students, involved in the study of English tenses and grammar respectively by Zakaria and Yunus (2020) and Webb and Doman (2016), admitted that they learned grammatical concepts from the videos shared by the teachers in addition to the explanation in the face-to-face class. The activities in the discussion forum made by the English grammar instructor in the current study also deepened the students’ understanding of the grammatical concept as illustrated by the figure 1 (see Figure 1).

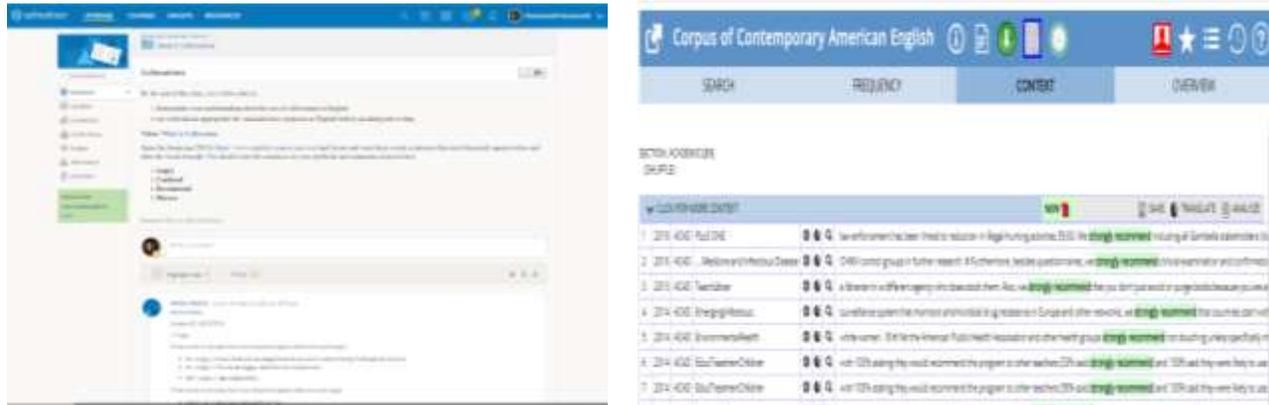


Figure 1. Student’s responses in the discussion forum and Coca sample

The second research question this study sought to answer was how this learning design could enhance the students’ grammatical knowledge. It was found that the affordances of extensive grammar input and peer and teacher feedback were perceived to significantly contribute to their learning gains. This flipped classroom-based corpus instruction exposed the students to authentic English language use because it facilitated the students’ learning beyond the classroom via Schoology and access to COCA America. Gilmore (2009) and Hegelheimer (2006) unveiled that using Corpus enabled the students to examine their own grammatical errors through the analysis of authentic texts in the corpora. Similarly, in the context of FC, students gain more learning hours. This has been evidenced by previous studies, such as Bezzazi (2019); Husnawadi (2021); Lee and Wallace (2017); Turan and Akdag-Cimen (2019). Husnawadi (2021), for instance, uncovered that the use of FC afforded the students with sufficient English language input, which is fundamental to their language development (Ellis, 2005). Similarly, previous studies also uncovered that FC promote students’ time to learn (Buitrago & D áz, 2018; Lee & Wallace, 2017). In addition, the improvement to the students’ grammatical knowledge can be attributed to the amount of the feedback the students received from their peers and lecturer. This corresponds to that of Bezzazi (2019) and Fathi and Rahimi (2020) who found that FC could facilitate interaction between the students and teachers.

Theoretically speaking, the FLIP theory underlying the learning model in this study was aimed to promote the positive learning objectives. “FLIP pillar” as cited in (Hung, 2017, p. 188) in details entails “The F principle of a flexible language learning environment”, giving input or exposure to the English language in a flexible manner, accommodating every learner as a means for creating meaningful flipped classroom environment inundated with the mastery of learning materials. “The L principle of a language learning culture” means that the learning actively engages the students in the communicative use of English language, while “the I principle of intentional linguistic content” entails that the design learning mechanism links the learning materials or contents with the learning activities in and outside the classrooms. The final principle, “the P principle of a professional language educator” maintains the professionalism and skills to establish a learning community, where the students are active and responsible for their own learning. All these principles anchoring this FC learning model afforded the students to maximize their learning involving in and outside of classroom learning activities. These are empirically evidenced to promote their self-confidence, motivation and grammar mastery (Buitrago & D áz, 2018; Su Ping et al., 2020).

This study also uncovered that the pre-service EFL teachers and lecturer faced several challenges, such as low internet bandwidth and technical skills on how to use Corpus, while the lecturer experienced overload tasks. This finding corroborates previous studies on the use of FC in particular (e.g., Afzali & Izadpanah, 2021; Arslan, 2020; Husnawadi, 2021; Lubis & Rahmawati, 2022; Zakaria & Yunus, 2020) and Corpus (Liu & Jiang, 2009). Zakaria and Yunus (2020), for example, discovered that 5.6% of the students in their study preferred the conventional grammar instruction to FC because of the technological barriers, such as the internet access in that these students resided in rural areas. A systematic literature review by Arslan (2020) on the FC in ELT context unveiled that the primary problems the students and teachers encountered were the internet and overload tasks. To address this issue, Mehring (2018) advocates that the English teachers should be gradual and mindful when implementing FC to avoid the learning burnout and daunting tasks. Husnawadi (2021) further stresses the importance of equipping the students who are new to FC with less demanding tasks. In addition, like many other technology-based instruction, the government or school superintendents should provide facilities to freely access the internet to avoid the learning disruption during the students’ e-learning (Altas & Mede, 2021). These challenges also encapsulate that soft-version of Corpus, giving sample texts to the students taken from certain Corpus databases, for the teaching and learning of English grammar be better applied than the hard-version, which requires the students to independently dive into the text patterns; or the English grammar instructor may begin with the former, which

later can be gradually led to the use of hard-version. This is particularly critical for the students with less grammatical knowledge, while the hard-version can be used for their counterparts with advanced English level (Gabrielatos, 2005). In the same vein, Liu and Jiang (2009) suggest that Corpus should be used for advanced level language learners.

## 6. Conclusion

This study designed and set out to examine the extent to which the joint designed of the learning model, Flipped Classroom-based Corpus for EFL grammar instruction and explored how the learning model enhanced the grammatical knowledge according to the students and the learning challenges encountered by the students and grammar instructor. This is the first study that integrates the two learning approaches and provided empirical evidence on its efficacy for the teaching and learning of EFL grammar at the preservice EFL teacher program of the Islamic university. The learning model enabled the students to learn inside and outside the classroom through the exposure into the target language multimodal forms, such as through watching videos, discussion, and surfing on the oceans of authentic texts afforded by the COCA of American English. Despite this, the students regarded the low internet bandwidth and a lack of understanding on the use of the COCA America as their primary learning challenges. For the grammar instructor, the learning model was perceived to be daunting, giving him extra tasks in that he had to invest more time to prepare for the instruction. Grammar instructors should ideally invest more time and prepare the learning materials in advanced to minimize this cognitive overload.

The findings are subject to at least two limitations. First, this study did not compare students' learning gains to those using conventional methods. Further studies need to compare the effectiveness of this learning model with the use of ordinary grammar instruction methods. This can be actualized using pure or quasi-experiment. Secondly, more in-depth studies are needed to explore the students' experiences in learning grammar using this learning model. This can be best manifested using narrative inquiry. Nonetheless, this study has demonstrated for this first time that flipped classroom can be mediated by Corpus as a pedagogical approach for the teaching and learning of English grammar in the EFL context. It provides theoretical and practical insights for EFL (grammar) instructors to adapt or adopt this learning model in their respective learning contexts.

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