

The Impact of a Proposed Flipped Learning Program on Promoting Egyptian EFL Engineering Students' Grammatical Achievement and Competence

(Ebtihal A. Helal, Ph.D., TEFL Lecturer,

Faculty of Languages, October Modern Sciences & Arts University)

Abstract

This study aimed at enhancing Egyptian EFL second-year engineering majors' grammatical achievement and accuracy by implementing a suggested flipped learning program. Participants were thirty-six EFL engineering sophomores, and they were taught grammar according to the suggested program for ten weeks during the fall 2022 semester of the academic year 2022/ 2023. Instruments were a pre-/post grammar achievement test and a pre-/post grammatical competence test. Results of the grammatical achievement posttest revealed the study group's tangible growth in their overall grammar achievement and in their achievement of each grammar sub-skill. Grammatical competence posttest results proved the remarkable improvement in the participants' ability to use accurate grammatical structures in written as well as in spoken tasks. Therefore, it was concluded that flipping grammar instruction resulted in significant progress in the participants' grammatical achievement and competence. Recommendations were made to flip the instruction of other language skills and investigate its impact on fostering these skills among students in varied educational settings.

Keywords

Flipped learning, Grammar achievement, Grammatical competence, Egyptian EFL engineering students

أثر برنامج مقترح للتعلم المعكوس علي تنمية التحصيل النحوي و الكفاءة النحوية لدي طلاب
الهندسة المصريين الدارسين للغة الإنجليزية كلغة أجنبية

(إعداد: د. ابتهاج عبد العزيز أحمد هلال

مدرس مناهج و طرق تدريس اللغة الإنجليزية كلغة أجنبية

كلية اللغات- جامعة أكتوبر للعلوم الحديثة و الآداب)

الملخص

هدفت هذه الدراسة إلي تنمية التحصيل النحوي و الدقة النحوية لدى الطلاب المصريين الدارسين للغة الإنجليزية كلغة أجنبية بالفرقة الثانية بكلية الهندسة من خلال تطبيق برنامج مقترح للتعلم المعكوس. وقد درس الطلاب المشتركون في الدراسة الحالية - وعددهم ستة و ثلاثون طالباً- النحو وفقاً للبرنامج المقترح لمدة عشر أسابيع أثناء فصل الخريف الدراسي 2022 من العام الجامعي 2022 / 2023م. و تكونت أدوات الدراسة من اختبار تحصيل نحوي قبلي / بعدي و اختبار كفاءة نحوية قبلي/ بعدي. و قد أظهرت نتائج الاختبار البعدي للتحصيل النحوي نمواً ملموساً في التحصيل النحوي ككل لدي مجموعة الدراسة وكذا في كل مهارة فرعية للتحصيل النحوي. و بالمثل أثبتت نتائج الاختبار البعدي للكفاءة النحوية تحسناً ظاهراً في قدرة الطلاب المشتركين في الدراسة علي استخدام تراكيب نحوية دقيقة في مهام كتابية و شفوية. و لذا فقد خلصت الدراسة إلى أن تطبيق استراتيجية الفصل المعكوس عند تدريس النحو قد أدي إلي تقدم هام في تحصيل الطلاب النحوي و كفاءتهم النحوية. و من ثم أوصت الدراسة الحالية بتطبيق استراتيجية الفصل المعكوس لتنمية مهارات اللغة الأخرى و بحث أثر ذلك علي تنمية هذه المهارات بين الطلاب في مختلف المراحل التعليمية.

الكلمات المفتاحية

التعلم المعكوس، التحصيل النحوي، الكفاءة النحوية، طلاب الهندسة المصريين الدارسين للغة الإنجليزية كلغة أجنبية

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Introduction

In the current rapidly changing world, technology and digitalization have become part and parcel of everyday life. In fact, technology has offered plenty of options to make foreign language learning easier, more accessible and more engaging. One of the prevalent technological options is blended learning where face-to-face and online learning are purposefully combined to facilitate EFL instructional and learning processes (Poon, 2013; Pumjarean, Muangnakin & Tuntinakhongul, 2017; Hosseinpour, Biria & Rezvani, 2019; Muxtorjonovna, 2020; Pammu, Machmoed, Astuty & Sahraeny, 2021).

Blended learning can take place in varied modes including the use of a learning management system (LMS) such as the Moodle where materials, assignments and quizzes are uploaded for EFL learners' use anytime and anywhere (Isti'anah, 2017; Al Bataineh, Banikalef & Albashtawi, 2019). It can, also, happen through implementing project-based learning as EFL students use varied online sources to collect and analyze data necessary for designing and implementing their projects (Mali, 2016; Poonpon, 2017; Pham, 2018; Ngadiso, Sarosa, Asrori, Drajadi & Handayani, 2021). Furthermore, flipped learning is another form of blended learning where EFL learners study the linguistic content as they watch assigned online videos, go through PowerPoint or Prezi presentations uploaded on the LMS and answer online quizzes before class time (Alsowat, 2016; Sidky, 2019; Öztürk & Çakıroğlu, 2021). In the flipped learning model (FLM), classroom time is devoted to holding deep classroom discussions and doing challenging competitive as well as collaborative tasks; it is, also, spent in higher-order thinking activities and problem-solving exercises (Dickenson, 2014; Prodoehl, 2015; Alsowat, 2016).

Going back in time, flipped learning originated in 2006 in the USA when two chemistry high school teachers in Colorado named Jonathan Bergmann and Aron Sams discovered that some of their students could not attend classes regularly. Then, in order to help these students catch up

any missed materials, they started recording and posting these materials in the form of online videos. As the students watched these videos, they expressed their satisfaction and asked for more videos to learn chemistry lessons better. With the success of this idea and its positive effect on the students' achievement (Bergmann & Sams, 2012; Al-Naabi, 2020), it gained popularity and spread all over the world in different educational settings and in varied courses. Additionally, with the third millennium technological breakthrough, many EFL university instructors advocated adopting the flipped learning model (FLM) as it fostered EFL learners' linguistic competence while increasing their engagement, motivation and autonomous self-regulated learning (Do, 2022; Linling & Abdullah, 2023).

It is worth noting that sometimes FLM is adopted to overcome sudden obstacles that prevent the regular implementation of face-to-face classes, and these obstacles include the students' inability to attend classes regularly (Bergmann & Sams, 2012) and pandemics spread (Setianingsih & Cahyaningrum, 2023). Thus, with the spread of the COVID-19 pandemic, several educational institutions all over the world adopted the FLM as a viable hybrid learning option to achieve the courses intended learning outcomes while protecting their students' and instructors' lives (Hung, 2022; Linling & Abdullah, 2023; Setianingsih & Cahyaningrum, 2023). Hence, in Linling's and Abdullah's (2023) review of twenty-two studies conducted in varied EFL contexts during the COVID 19 pandemic, flipped learning was found to foster EFL learners' interaction, autonomy, participation, engagement, higher-order thinking skills (HOTS), self-confidence, satisfaction, critical thinking ability, motivation, grammar, vocabulary, speaking, writing, reading and listening comprehension. Additionally, flipped learning was found effective in lowering the students' reading anxiety and providing them with a flexible learning environment.

Moving to grammar, it is a system of rules that shows how words can be combined and arranged to form accurate meaningful well-structured sentences (Brown, 2007). From a pedagogical point of view, grammar is a subsidiary language skill that is necessary for communicating accurately in speaking and writing. Besides, mastering grammatical rules facilitates reading and listening comprehension. However, grammar is a skill that most EFL learners struggle with (Al-Mekhlafi & Nagaratnam, 2011; Mart, 2013; Yusob, 2018; Hoa & Truc, 2020; Paputungan, Helingo & Rahmah, 2022).

Despite the earlier overemphasis on teaching grammar rules through the Grammar Translation Method (GTM), this overemphasis resulted in EFL learners who knew about grammatical rules but who did not know how to use these rules to communicate efficiently in authentic contexts (Larsen-Freeman & Anderson, 2011; Mazher, Ahmed & Aslam, 2015; Eisa, 2020; Waseel, 2020). Furthermore, despite its importance and relevance to other language skills, grammar is an area that does not arouse many EFL learners' interest. Additionally, the issue of fostering EFL students' motivation is a major challenge in grammar classes, which tend to be traditionally implemented in teacher-centered sessions (Al-Mekhlafi & Nagaratnam, 2011; Ajaj, 2020; Paputungan, Helingo & Rahmah, 2022).

In the Egyptian context, many EFL learners find mastering grammar skills quite demanding and challenging (Abdel-Latif, 2017; Badr & Ibrahim, 2022). This is attributed to the fact that grammar is mostly taught deductively; it is, also, taught out of context in the form of rules to be memorized, and authentic materials are not usually used to foster EFL Egyptian learners' grammatical competence and accuracy (Abdel-Latif, 2017; Badr & Ibrahim, 2022). Additionally, many Egyptian EFL learners find grammar teaching and learning a demotivating disengaging area as a result of the traditional way of teaching grammar where rules memorization, drills and unauthentic materials and decontextualized activities prevail (Badr & Ibrahim, 2022).

In order to help Egyptian EFL undergraduates improve their grammatical knowledge and competence, more innovative student-centered models should be adopted. Hence, flipped grammar instruction is a feasible option that is worth investigating among Egyptian EFL engineering students. This is due to the nature of engineering students and their constant use of technology in their university studies. It is, also, due to the fact that a number of studies in varied university contexts proved the positive influence of the FLM on EFL learners' grammar skills and achievement. These include the studies of Bezzazi (2019) in Taiwan, Saidah (2020) and Lubis and Rahmawati (2021) in Indonesia, Al-Naabi (2020) in Oman as well as Dinçer and Polat (2022) in Turkey.

Flipping grammar instruction was, also, found to have a positive impact on fostering EFL university students' favourable attitudes in the studies of Wang (2021), Cay and Karakus (2022) and Dinçer and Polat (2022). Additionally, flipped grammar learning had a positive role in promoting undergraduates' satisfaction level in the study of Mandasari and Wahyudin (2021) as well enhancing their autonomous learning in the study of Cay and Karakus (2022). It is worth noting that -as far as the

researcher knows- no study was conducted to investigate the role of implementing the FLM in fostering grammatical achievement and competence among Egyptian EFL engineering sophomores. Hence, this study is an endeavor to explore this area.

Context of the problem

Classroom observation of second year engineering majors at October Modern Sciences and Arts (MSA) University revealed that most of them struggled with applying grammatical rules whether in speaking or in writing. Thus, errors related to incorrect tense and passive voice formation were evident in these students' speaking and writing activities. For example, when asked about their future plans, some of them stated, '*By the year 2028, I will have start my career.**' instead of '*By the year 2028, I will have started my career.*' Additionally, when they were required to give an oral presentation about the causes, effects and solutions to the traffic congestion problem in Egypt, some of them maintained, '*Egypt have been suffer from this problem for decades.**' instead of saying, '*Egypt has been suffering from this problem for decades.*'

Examples of these students' wrong passive voice formation included saying '*The roads are paving by the workers.**' and '*The houses had constructed before the new residents arrived.*' instead of '*The roads are being paved by the workers.*' and '*The houses had been constructed before the new residents arrived.*' respectively. Furthermore, these students' writing and speech demonstrated frequent instances of relative clauses misuse. Examples of this erroneous use of relative clauses included '*the man who I saw yesterday**' and '*the young lady whom mother is a doctor**' instead of '*the man whom I saw yesterday*' and '*the young lady whose mother is a doctor*' respectively.

Through analyzing these students' written performance and observing their speech, errors related to incorrect use of quantifiers, comparatives and superlatives were, also, detected. For instance, some of them used the erroneous forms '*many information**', '*few knowledge**', '*more easy**' and '*more clever**' instead of '*much information*', '*little knowledge*', '*easier*' and '*cleverer*' respectively.

To investigate this problem at a deeper level, the researcher administered two diagnostic tests on a random sample of twenty-five engineering sophomores at MSA University. The first test was a grammar achievement test, and the second was a grammatical competence test. The grammar achievement test consisted of sixty items, and it comprised thirty MCQs as well as thirty items where the students were asked to do

as shown between brackets. Results of the achievement test revealed that these students faced remarkable difficulties with the present perfect progressive, past perfect and future perfect tenses. Additionally, it was found that these students displayed weak ability to apply the rules of if-conditionals, passive voice, reported speech, quantifiers, partitives as well as comparatives and superlatives correctly.

The grammatical competence test included three writing tasks and four speaking tasks, and its results emphasized these students' inability to use the aforementioned grammatical rules to communicate effectively in authentic contexts. Hence, the findings of both tests go in line with the results of the studies conducted by Al-Mekhlafi and Nagaratnam (2011), Abdel-Latif (2017), Ajaj (2022) and Badr and Ibrahim (2022) illustrating EFL Arab learners' need for more innovative teaching practices to enhance their grammar achievement and accurate use.

The researcher, also, observed EFL engineering sophomores' classes at MSA University and found out that:

- (a) Grammar was taught deductively following conventional teacher-centered approaches.
- (b) Due to the conventional teaching approaches adopted, students were demotivated and disengaged most of the time during grammar lessons.
- (c) To check the students' comprehension of the given grammatical rules, they were asked to answer MCQs, fill in the blanks or do as shown between brackets. Thus, they were rarely involved in authentic speaking or writing tasks where they would apply these grammatical rules to convey clear messages to listeners or readers.
- (d) The FLM was not applied in engineering sophomores' classes to promote their grammatical knowledge and accuracy.

Statement of the Problem

The current study problem was manifested in Egyptian engineering sophomores' poor mastery of grammar sub-skills in a way that hindered their ability to communicate well in varied written and spoken contexts. This might be partly attributed to the conventional teacher-centered methods adopted by their instructors. It might be, also, partly attributed to the fact that these students rarely applied these rules in creative, problem-solving, collaborative or competitive authentic tasks. Therefore, this study attempted to promote EFL second year engineering majors' grammatical achievement and competence through implementing a suggested flipped learning program. Thus, the present study endeavored to answer the following principal question:

"What is the impact of a proposed flipped learning program on promoting Egyptian EFL engineering sophomores' grammatical achievement and competence?"

The following sub-questions emerged from the study chief question:

1. What are the theoretical underpinnings of a suggested flipped learning program designed to promote Egyptian EFL engineering sophomores' grammatical achievement and competence?
2. What are the components of the suggested flipped learning program?
3. How far is the suggested program effective in enhancing Egyptian EFL engineering sophomores' overall grammatical achievement and competence?
4. How far is the suggested program effective in fostering Egyptian EFL engineering sophomores' achievement and competence in each grammar sub-skill?

Hypotheses

The following hypotheses were verified by this study:

1. There is a statistically significant difference between the study group's pre-posttest means in overall grammar achievement in favour of the posttest.
2. There are statistically significant differences between the study group's pre-posttest means in each grammar sub-skill achievement in favour of the posttest.
3. There is a statistically significant difference between the study group's pre-posttest means in overall grammatical competence in favour of the posttest.
4. There are statistically significant differences between the study group's pre-posttest means in each grammatical sub-skill competence in favour of the posttest.

Objectives

The main targets of this study were:

1. Specifying applicable techniques for constructing a suggested flipped learning program to develop engineering sophomores' grammatical achievement and competence.
2. Designing a suggested flipped learning program to foster EFL engineering sophomores' grammatical achievement and competence.

3. Measuring the impact of the suggested program on enhancing EFL engineering sophomores' grammatical achievement and competence.

Delimitations

This study was restricted to:

1. An intact EFL engineering sophomores' class at MSA University in Giza governorate;
2. A specific duration for conducting the experiment (ten weeks of the fall 2022 semester);
3. Eleven sessions for applying the suggested program including an introductory session and the following ten intervention sessions; and
4. Developing only the study group's achievement and competent use of the present perfect progressive tense, the past perfect tense, the future perfect tense, comparatives and superlatives, quantifiers and partitives, tag questions, relative clauses, if-conditionals, passive voice and reported speech in authentic speaking and writing activities.

Definition of terms

Flipped learning is a strategy that applies both asynchronous and synchronous learning as EFL learners watch short online instructional videos as well as presentations slides at home, thus devoting class time to problem-solving, higher-order thinking, collaborative and competitive tasks. In other words, it is an inverted learning strategy where lecturing happens at home while authentic thought-provoking activities are practised in class (Bergmann & Sams, 2012; Bishop & Verleger, 2013; Warden, 2016; El-Esery & Radwan, 2017; Yavuz & Ozdemir, 2019; Nathawet, 2020; Afzali & Izadpanah, 2021; Allahveysi & Aliakbari, 2021; Cay & Karakus, 2022; Dinçer & Polat, 2022; Setianingsih & Cahyaningrum, 2023).

Operationally speaking, it is the blended learning framework according to which the current program content, activities and assessment strategies were employed to foster the study group's grammatical knowledge and accurate grammar use in real-life spoken and written tasks.

Grammar refers to the study of possible sentence structures that allows EFL learners to combine words to form meaningful sentences (Thornbury, 2004; Mart, 2013; Chakradhar, 2021). In other words,

grammar is the system that regulates words and phrases arrangement in varied sentences (Yunita, 2016; Papatungan, Helingo & Rahmah, 2022); therefore, mastering English grammar contributes to achieving higher levels of linguistic proficiency (Waseel, 2020).

At the operational level, it is defined as the system of rules that comprises the specified eleven grammar sub-skills of accurately using (a) the present perfect progressive tense, (b) the past perfect tense, (c) the future perfect tense, (d) comparatives and superlatives, (e) quantifiers, (f) partitives, (g) tag questions, (h) relative clauses, (i) if-conditionals, (j) the passive voice and (k) reported speech in given sentences as well as in real-life spoken and written contexts.

Grammatical achievement refers to EFL learners' ability to recognize and accurately apply grammatical rules in varied sentences (Isti'annah, 2017; Tsulaia, 2021; Pham, 2023).

It is defined operationally as the study group's ability to recognize and correctly apply the specified eleven grammar sub-skills in the given sentences.

Grammatical competence is a major aspect of effective communication, and it refers to the ability to use correct grammatical forms and rules to convey meaningful messages in authentic spoken and written situations (Biswas and Anis, 2017; Hoa & Truc, 2020; Waseel, 2020; Nanquil, 2021).

Operationally, it denotes the study group's ability to use correct grammatical rules and forms in the given writing and speaking real-life situations that cover the specified eleven grammar sub-skills.

Variables of the study

Independent variable: This refers to the study intervention (the suggested flipped learning program implemented with the study group).

Dependent variable: This denotes the study group's overall grammatical achievement and competence as well as their achievement and correct use of each of the specified eleven grammar sub-skills in authentic writing and speaking tasks.

Theoretical background

1.1 Definitions and importance of grammar

Grammar refers to the study of how words and phrases are arranged and combined to form sentences (Richards, Platt & Platt, 2007). It, also, analyzes the structure of phrases and sentences (Yule, 2010). According to Ur (2012, p.76), grammar refers to "the way words are put together to make correct sentences."

Grammar is an essential part of language teaching and learning processes (Yusob, 2018; Waseel, 2020; Ajaj, 2022). It is a sub-skill of both speaking and writing abilities (Hashemi & Daneshfar, 2018; Syafryadin, 2021; Ajaj, 2022). Hence, displaying an adequate level of grammatical competence facilitates effective communication of ideas and emotions (Mart, 2013; Nanquil, 2021). Additionally, mastery of grammatical rules and patterns facilitates EFL learners' comprehension of spoken as well as written texts in authentic situations (Mart, 2013; Fithriani, 2019; Syafryadin, 2021). Therefore, Abduh and Algouzi (2020, p. 291) maintain, "In the absence of grammar, words hang together without any real meaning." Additionally, in the twenty-first century, grammatical accuracy and competence are major requirements for EFL university students whether to proceed in their academic life or to get good job opportunities in the labour market (Hashemi & Daneshfar, 2018; Nanquil, 2021).

1.2 Difficulties of learning and teaching EFL grammar

Despite the earlier focus on grammar in many EFL contexts worldwide, studies proved that this overemphasis on grammar neither increased learners' accuracy nor fostered their effective written and spoken communication in authentic situations. Consequently, difficulties related to teaching and learning EFL grammar were highlighted in varied studies by numerous scholars. For instance, Yusob's (2018) study pinpointed that teaching grammar represented a major challenge for EFL university instructors in Malaysia. This is due to the fact that participants in his study did not have enough experience or training in effective grammar teaching methods, thus relying on trial and error many times; additionally, some of them were unable to identify their students' grammatical needs and how to adequately address them. Moreover, Yusob's (2018) study highlighted the challenge that with the current increased emphasis on developing other language skills, EFL grammar received less attention, was taught incidentally during reading, writing, listening and speaking and was not adequately assessed among EFL students.

Through questionnaires and interviews, Hoa & Truc (2020) found that Vietnamese EFL undergraduates faced considerable difficulties in acquiring the four grammatical patterns of the passive voice, the reported speech, embedded questions and relative clauses. These difficulties were due to mother tongue interference, students' varied linguistic aptitude levels, grammatical rules complexity, insufficient practice to use the grammatical patterns communicatively and the adopted teaching methods

that primarily focused on the GTM, deductive and inductive teaching of grammar as well as asking students to highlight certain grammatical forms in given texts.

In a review paper, Waseel (2020) identified several difficulties encountered while teaching EFL grammar, and these included some instructors' limited teaching experience as well as their lack of solid theoretical understanding of grammar place in current English curricula. Difficulties, also, included high class density, students' varied abilities and backgrounds, GTM dominance in many EFL teaching contexts and limited class time. Likewise, in Nepal, Regmi (2021) pointed out that EFL teachers faced the difficulties of lack of experience, improper use of facilities and teaching aids, large classes and students' low motivation to learn English grammar.

In their qualitative study, through interviewing ten intermediate level English majors, Paputungan, Helingo & Rahmah (2022) found that they faced difficulties related to understanding and correctly using modal auxiliaries, tenses and reported speech. Such difficulties were attributed to several factors including the adopted ineffective teaching methods and low motivational levels. Therefore, participants suggested that their instructors should involve them in creative engaging activities to avoid monotony and boredom in grammar lessons.

When it comes to Arab EFL learners, in Oman, Al-Mekhlafi and Nagaratnam (2011) highlighted that grammar learning causes students' discomfort and anxiety. They, also, found that relying solely on communicative tasks without the necessary focus on form might not help EFL students achieve desired levels of grammatical accuracy. Through a questionnaire and classroom observations, Abduh and Algouzi (2020) found out that Saudi EFL teachers tended to adopt traditional methods while teaching grammar, and these conventional methods usually overlooked the role of grammar in achieving communicative competence. In Iraq, Ajaj's (2022) descriptive study highlighted Arab EFL learners' and teachers' misconceptions about grammar role as a major obstacle in its teaching and learning. She, also, pinpointed the inappropriate English curricula and EFL learners' limited enthusiasm to study grammar as major difficulties.

1.3 Techniques of teaching EFL grammar

Grammar instruction was an area of EFL researchers' attention a long time ago. As highlighted earlier, the first method that gained popularity was the GTM where students were taught grammar rules deductively and translated lists of vocabulary in their mother tongue.

According to this method, grammatical rules were explained first, and then students were asked to apply these rules in varied exercises (Larsen-Freeman & Anderson, 2011, Hashemi & Daneshfar, 2018; Aman, 2020; Regmi, 2021). However, this method did not help EFL learners use grammatical rules effectively in authentic communicative contexts (Larsen-Freeman & Anderson, 2011).

Later, inductive teaching of grammar was adopted as students were asked to examine linguistic data where the grammatical patterns were evident. After that, they were asked to extract the grammatical rules themselves from the examples given, and apply these rules later in other sentences and utterances (Aman, 2020; Waseel, 2020; Regmi, 2021).

Grammar can be, also, taught either explicitly or implicitly. In explicit teaching of grammar, rules are clearly explained to EFL learners whereas in implicit teaching of grammar, rules are not openly explicated but rather understood as learners are exposed to varied stimuli and activities (Aman, 2020). With the rise of the Communicative Teaching Approach, grammar was taught implicitly as students read or listened to stories, did role playing activities or got engaged in authentic dialogues and discussions (Regmi, 2021). Other techniques that can be used to enhance EFL learners' grammar acquisition include communicative games (Fithriani, 2019), problem-solving activities (Al-Mekhlafi & Nagaratnam, 2011) as well as using realia, drawings and pictures (Regmi, 2021).

Contextualizing grammatical patterns in interesting stories can arouse EFL learners' interest as well as foster their active involvement. Therefore, Biswas and Anis (2017) recommend using interesting short stories that are suitable to EFL learners' linguistic abilities to meaningfully contextualize grammatical rules and patterns. Additionally, Kamaludin, Yoke and Rajendran (2015) found in their study that storytelling significantly fostered Malaysian EFL low intermediate adult learners' grammar while maintaining their interest. Similarly, in his study, Nguyen (2021) found that stories were an effective way for introducing English grammar to Vietnamese young EFL learners.

According to Mart (2013), grammar should be contextualized in reading texts and conversations to help EFL learners understand how language is used for communicating ideas. Moreover, Roslim, Azizul and Zain (2011) as well as Jadhav (2015) advocate the use of songs to teach English grammar because music lowers the students' affective filter and helps them learn grammatical patterns in an anxiety-free classroom atmosphere. Besides, songs tempo and rhymes help EFL learners retain grammatical forms long after they have heard or sung the songs.

One main approach of grammar teaching that focuses on form, meaning and use is the discourse-based teaching. Applying this approach helps EFL learners realize how grammar is used in authentic texts to communicate ideas and emotions. (Farrokhi, Ajideh, Zohrabi & Panahi 2018; A'yun, 2019; Panahi, 2020; Badr & Ibrahim, 2022). Furthermore, empirical evidence proved the positive influence of this approach on fostering Indonesian EFL eighth graders' grammar skills in A'yun's (2019) study. Additionally, in their study, Farrokhi, Ajideh, Zohrabi and Panahi (2018) found that adopting discourse-based grammar teaching significantly promoted Iranian EFL upper intermediate learners' writing ability. Moreover, in their study, Badr and Ibrahim (2022) found that implementing a suggested discourse based grammar teaching program over a period of ten weeks minimized Egyptian second year English majors' grammatical errors in essay writing.

In university settings, other techniques that proved their effectiveness in fostering grammar acquisition included involving EFL undergraduates in (a) writing dialogue journals as in Rokni's and Seifi's (2013) study, (b) Facebook discussions as in Ahmed's (2016) study, (c) blended learning activities as in the studies of Isti'anah (2017) and Al-Bataineh, Banikalef and Albashtawi (2019), (d) consciousness raising tasks as in the studies of Nugroho (2018) and Panarook (2022), (e) mobile-assisted language learning (MALL) as in the study of Ghorbani and Ebadi (2020), (f) data-driven corpus based learning as in the study of Tsulaia (2021) and (g) gamified learning as in the studies of Witari, Anwar and Arifani (2020) and Pham (2023).

2.1 Definitions and merits of flipped learning

Flipped learning is a student-centered blended learning strategy where instructors thoughtfully integrate face-to-face and online learning to maximize students' achievement, interaction, engagement and active participation ((Mandasari & Wahyudin, 2021; Linling & Abdullah, 2023). It is often referred to as the inverted classroom strategy as it enables EFL learners to study the linguistic content at home through varied online resources including videos, presentations, podcasts, videocasts and quizzes, thus dedicating classroom time to in-depth classroom discussions, engaging problem-solving and higher-order thinking activities as well as case studies. Additionally, according to the FLM, in-class activities can be carried out in groups, in pairs or individually (Milman, 2012; Karimi & Hamzavi, 2017; Hamdani, 2019; Sya'adah, Rahmat & Marlina, 2022; Putri & Nurkhamidah, 2023).

Several scholars and researchers have highlighted the benefits of flipping EFL instruction. Among these benefits are fostering the students' collaboration and problem solving capabilities (Aljaraideh, 2019; Hung, 2022). Furthermore, the FLM proved its effective role in enhancing EFL learners' critical thinking (Aljaraideh, 2019; Pang, 2022). Flipped learning was, also, found to increase EFL learners' engagement (Akçayır & Akçayır, 2018; Pang, 2022), autonomy (Du, 2020; Kirmizi & Komec, 2020), participation, interaction, and motivation (Akçayır & Akçayır, 2018; Masoud, 2019; Kirmizi & Komec, 2020) as well as their linguistic competence and academic performance (Bueno-Alastuey & Galar, 2017; Öztürk & Çakıroğlu, 2021). Additionally, adopting the FLM provides EFL learners with flexible learning opportunities and enables them to learn at their own pace (Hung, 2022; Gustian, Darmah & Rusmawaty, 2023).

Numerous studies explored the impact of flipping instruction whether in university or school settings. Starting with university students, in his study, Alsowat (2016) found that flipped EFL instruction was effective in fostering Saudi female undergraduates' HOTS, participation and satisfaction level. In Oman, Gasmi (2017) proved that adopting the FLM fostered EFL undergraduates' engagement in academic writing. In his study, El-Sawy (2018) found that Saudi English majors had positive views of flipping EFL instruction and combining it with the Blackboard LMS as this strategy enhanced their vocabulary and pronunciation as well as fostered effective student-teacher communication. Othman and Abdel El-Hallim (2018) proved that a flipped learning program promoted Egyptian EFL undergraduates' speaking and positive attitudes.

Gürlüye and Elkiliç (2020) found that flipping EFL classes fostered Turkish freshmen's writing and had a positive effect on their attitudes. In Iraq, Al-Mofti (2020) found that implementing flipped classes improved English majors' pronunciation and satisfaction levels. Similarly, Bin-Hady and Hazaea (2020) proved that employing the flipped classroom strategy promoted Yemeni EFL prospective teachers' pronunciation and favourable attitudes. In Turkey, Öztürk and Çakıroğlu (2021) found that incorporating self-regulation strategies in flipped EFL accounting majors' classes fostered their reading, writing, speaking and grammar skills. Likewise, in Vietnam, Do (2022) found that flipping EFL instruction improved English majors' academic writing and had favourable effects on their attitudes. In China, Li, He, Tao & Liu (2022) proved that flipping

writing classes promoted undergraduates' vocabulary use, cohesion and pragmatic ability.

Moving to school settings, in Iran, Karimi and Hamzavi (2017) found that flipping EFL instruction promoted Iranian EFL learners' ability to comprehend written texts and had a favourable impact on their attitudes. As for Boyraz and Ocak (2017), they proved that implementing flipped classes promoted Turkish EFL learners' proficiency levels and resulted in positive feedback as indicated by most of the learners. In her study, Sidky (2019) proved that flipped EFL classes promoted Egyptian EFL secondary school students' speaking ability as well as their satisfaction rates. In Iran, Hajebi (2020) found that flipped classes promoted Iranian EFL intermediate level students' linguistic competence, motivation and positive attitudes. In Mexico, Lagunes-Reyes, Cruz-Ramos and Sandoval-Sánchez (2022) found that EFL vocational secondary school students had positive perceptions regarding the influence of flipping classes on their speaking performance, vocabulary and comprehension.

2.2 Flipped learning challenges

Despite the proven flipped learning effectiveness in numerous EFL studies, some studies have pinpointed considerable challenges that face its implementation in EFL contexts. Among these challenges were students' low interest in previewing pre-class materials and difficulty understanding them as highlighted by the studies of Samiei and Ebadi (2021) as well as Chang and Lan (2021). Other challenges included lack of technical support and lack of reliable speedy internet connections as illustrated by the studies of Samiei and Ebadi (2021), Ghufon and Nurdianingsih (2021), Chang and Lan (2021), Purwanti, Suryawati and Eliwanti (2022) and Ye (2022). Additionally, the studies of Ghufon and Nurdianingsih (2021) and Ye (2022) revealed that flipping EFL instruction resulted in teachers' increased workload. Likewise, the studies of Fischer and Yang (2022) and Ye (2022) highlighted that flipped EFL learning resulted in placing more burdens on the students' shoulders. Additionally, the studies of Li and Li (2022) and Shooli, Rahimi-Esfahani and Sepehri (2022) shed light on EFL learners' difficulty to adapt to the inverted classes strategy. Besides, Ye's (2022) study drew attention to the challenges of EFL learners' limited self-discipline in flipped learning programs, parents' opposition and insufficient administrative top-down support.

2.3 Steps of Flipped EFL grammar learning among university students

Following the FLM, several researchers suggested and implemented steps of EFL grammar learning among university students. This model was usually divided into three stages: before class time, during class time and after class time. Thus, in their study, Lubis and Rahmawati (2021) uploaded the varied learning materials on the LMS before class time, and students were required to self-study and explore the posted materials. Then, during class time, instructors were guides and facilitators who encouraged students to engage in group discussions and varied activities to enhance their grammar acquisition. After class time, students were asked to complete individual as well as group assignments. Likewise, Bezzazi (2019), Saidah (2020), Al-Naabi (2020), Mandasari and Wahyudin (2021), Wang (2021) and Dinçer and Polat (2022) focused on encouraging EFL undergraduates to watch online instructional grammar videos, explore presentations slides and answer online quizzes uploaded on the LMS or online platforms before class time while dedicating class time to group discussions, clarifying confusing grammatical points and doing engaging collaborative grammar activities.

Examples of flipped learning in-class activities included completing chain stories using conditionals, publishing articles describing the students' city using relative clauses, orally presenting the learners' future plans and creating posters about celebrities using English tenses (Dinçer & Polat, 2022). Additionally, Öztürk and Çakıroğlu (2021) highlighted the self-reflection stage in their customized FLM to enable EFL university students to evaluate their performance in the in-class activities, thus assuming more responsibility for their own learning.

Related studies

These were divided into the following two areas:

a. Studies developing EFL grammar among university students

Rokni and Seifi (2013) investigated the effect of involving Iranian EFL non-English majors in writing dialogue journals on promoting their grammatical knowledge. Participants were sixty-eight students who were equally divided into a treatment group and a control group; hence, each group had thirty-four students. The treatment group practised dialogue journal writing over a period of twelve weeks. On the other hand, the control group followed the usual method of grammar instruction. Tools were a pre-post grammar test, a questionnaire and an interview. Posttest

results proved the treatment group's remarkable gains in grammar knowledge as compared to the control group. It was, also, found that the treatment group students favored writing dialogue journals to enhance their grammatical knowledge. Additionally, it was found that dialogue journals increased the treatment group's fluent writing of well-structured sentences.

Ahmed (2016) explored the effect of using Facebook on fostering Saudi second year English majors' grammar and essay writing skills. Participants were randomly assigned into a control and a treatment group of thirty students each. The control group students were conventionally taught English grammar and writing. On the other hand, the treatment group used Facebook for grammar and writing discussion over a semester. Tools were a pre-/post grammar and essay writing test and a writing rubric. Posttest results illustrated the experimental group's remarkable progress in grammatical accuracy and writing skills. Hence, it was concluded that Facebook discussions effectively enhanced the treatment group's grammar learning and writing abilities.

Isti'anah (2017) examined the influence of blended learning on grammar achievement among Iranian English majors. Participants were twenty-six students who received grammar blended instruction over a semester; thus, they had a combination of online Moodle LMS instruction and in-class instruction. Online materials included videos, PowerPoint presentations and PDFs. During class time, students did varied activities to foster their grammar acquisition. Besides, varied online activities were accessed and done by the participants on the Moodle. Tools were a pre-/post grammar test, a questionnaire and students' reflection journals. Results proved the significant improvement in the students' grammar skills. Moreover, analysis of questionnaire results and students' reflection journals revealed that participants had favorable views of blended learning application in grammar lessons. Therefore, blended learning was recommended to be implemented in other EFL skills.

Hashemi and Daneshfar (2018) compared the influence of deductive, inductive and implicit teaching on grammar acquisition among Iranian EFL undergraduates. They, also, explored the impact of these grammar teaching methods on EFL learners' reading comprehension. Participants were eighty male and female students, and they were divided into three experimental groups. The first experimental group comprised

thirty-one law majors who studied grammar deductively. The second experimental group consisted of twenty-seven accounting majors who studied grammar inductively. The third experimental group had twenty-eight information technology majors who studied grammar implicitly. Treatment lasted for four months. Tools included a pre-/post grammar and reading comprehension test, three quizzes and a questionnaire. Posttest results proved that the most effective grammar teaching method was the inductive method. Then came deductive grammar teaching followed by implicit teaching. Results proved that there was no link between grammar teaching methods and reading comprehension abilities. Further studies were suggested to explore the effect of students' gender on grammar acquisition. More studies were, also, proposed to evaluate the impact of these grammar teaching methods on students' listening, speaking and writing.

Nugroho (2018) investigated the impact of inductive consciousness-raising tasks on Indonesian first year English majors' acquisition of the present simple tense. Participants were twenty-three students who worked in groups as they examined sample sentences where the present simple tense was used. To clarify, they were asked to examine the sentences and deduce the grammatical rules of the present simple tense. The study tool was a grammar judgment pre-/posttest where the students were asked to (i) identify whether the given twenty sentences were correct or not, (ii) identify errors in ungrammatical sentences, (iii) correct the errors and (iv) provide reasons for their correction. Posttest results proved the significant gains in the participants' acquisition of the present simple tense due to the inductive awareness-raising tasks. Hence, it was recommended to involve students in similar tasks to help them acquire other tenses and more advanced grammatical rules. It was, also, advocated to conduct further studies on a larger sample to get more accurate results.

Al-Bataineh, Banikalef and Albashtawi (2019) examined the role of the Moodle blended LMS in fostering Jordanian English majors' grammatical proficiency and positive attitudes. Participants were randomly divided into an experimental group comprising thirteen students and a control group consisting of fifteen students. The experimental group studied English grammar through the Moodle LMS for a semester where Prezi presentations, videos, home assignments and quizzes were accessed by the students. The control group studied the same grammar topics following the conventional method. Instruments

were a pre-/post grammar test and an interview. Posttest results provided evidence for the effectiveness of the Moodle LMS use in promoting the experimental group's grammatical accuracy as compared to the control group. Besides, the experimental group students had positive attitudes towards employing the Moodle LMS to enhance their grammar skill. Therefore, blended learning was recommended in EFL university classes, and EFL university instructors were recommended to receive sufficient training in Moodle use to foster their students' language skills.

Ghorbani and Ebadi (2020) explored the role of MALL in promoting Iranian female EFL undergraduates' grammar skills. Participants were divided into an experimental group of thirty students and a control group of ten students. Throughout the treatment, the experimental group students were divided into fifteen Telegram chat groups according to their English proficiency levels, and they were involved in grammar chats with their instructor for fifteen to thirty minutes every other night. In the Telegram instant chat messages, the experimental group received the teacher's feedback on their grammar performance. The control group students practised online Telegram grammar chats with their peers, but they were not offered any teacher's feedback. Instruments were a grammar pre-/ posttest and interviews. Results proved the experimental group's remarkable grammar development as compared to the control group, thus providing support for the effectiveness of MALL in developing EFL university students' grammar. Additionally, the experimental group had favourable views of MALL use in developing their grammar skills via online chatting. Therefore, further studies were suggested to explore the impact of other MALL chat applications like WhatsApp in fostering EFL grammar acquisition. It was, also, advocated to conduct similar studies on larger samples to get more valid results.

Witari, Anwar and Arifani (2020) investigated the impact of using Classcraft gamified learning platform on Indonesian non-English majors' acquisition of English grammar. Participants were randomly divided into a control group of fourteen students and an experimental group of thirteen students. The control group used the prescribed textbook to conventionally study English grammar. On the other hand, the experimental group studied English grammar using the textbook as well as Classcraft gamified learning platform. Instruments were a pre-/post grammar test and a questionnaire. Results revealed that gamified learning

enhanced the experimental group students' motivation, participation and engagement, thus leading to significant growth in their grammatical abilities as compared to the control group.

Mahmoud and Ali-El Deen (2021) compared the effectiveness of traditional versus online learning in fostering grammar acquisition among Saudi first year English majors. Participants (n= 70) were randomly divided into a control group and an experimental group of thirty-five students each. The control group studied English grammar according to the conventional method whereas the experimental group studied the same grammar lessons online via Zoom meetings. Additionally, the experimental group students were provided with PowerPoint presentations, audio-visual aids and handouts to enrich their virtual learning process. In addition to the live Zoom sessions, the experimental group students were, also, allowed to access the Zoom recorded sessions whenever they liked, thus enabling them to learn grammar both synchronously and asynchronously. Treatment lasted for eight weeks. Tools were an MCQ grammar achievement test, a questionnaire and classroom observations. Results proved the experimental group's significant grammar growth as compared to the control group, thus proving the effectiveness of online grammar learning. Hence, it was recommended to teach grammar online after providing students and instructors with the needed facilities, technical support and training.

Tsulaia (2021) examined the influence of data-driven learning on promoting Georgian first year prospective teachers' EFL grammatical achievement. Participants were forty-four intermediate level learners, and they were randomly divided into a control group and an experimental group of twenty-two students each. The experimental group studied English grammar following the data-driven learning model; thus, authentic concordance lines from corpora were examined to help learners extract the grammatical patterns and rules, and apply them afterwards in varied exercises such as MCQs, gap-filling, matching questions, transformation activities and correcting grammatical errors. The control group studied the same grammatical patterns following the conventional explicit deductive teaching method. Treatment took place over a period of eight weeks. Instruments were a pre-/post grammar test and a questionnaire. Results proved the experimental group's significant grammatical achievement gains. Furthermore, the experimental group reported their favourable perceptions of acquiring grammatical patterns

through data-driven learning as it enhanced their autonomy, engagement and participation.

Syafrayadin (2021) investigated the effect of visually illustrating grammatical rules on Indonesian English majors' grammar achievement. Participants were randomly assigned into a control group and a treatment group of thirty students each. The control group followed the regular method whereas the treatment group learned English grammar through visual illustrations (including pictures, videos, charts, maps and drawings) over a period of four months. Instruments were a pre-/post grammar test, class observations and an interview. Results proved the significant improvement in the treatment group's grammar, and this improvement was attributed to the visual illustration technique application. Moreover, it was found that the treatment group enjoyed learning grammar through visual aids as these illustrations helped students overcome varied grammar learning difficulties.

Panarook (2022) explored the impact of consciousness-raising (CR) activities on Thai EFL undergraduates' learning of phrases and clauses. Specifically, the study focused on 'relative and noun clauses' as well as 'present participle and gerund phrases'. Participants (n=90) represented varied majors, and they were randomly divided into an experimental group and a control group of forty-five students each. The control group studied the specified phrases and clauses according to the Grammar-Translation Method (GTM). Conversely, the experimental group studied the same grammatical constructions through consciousness-raising tasks; these tasks included identifying, reconstructing and classifying clauses and phrases. Treatment was carried out over a semester. Instruments were a pre-/posttest as well as an attitudinal and motivational test battery. Results revealed the experimental group's significant gains in learning English phrases and clauses. Besides, the experimental group had positive attitudes towards CR tasks and displayed high motivational levels as a result of implementing these tasks. Therefore, CR tasks were advocated to be carried out in English grammar classes.

Pham (2023) examined the influence of gamified learning using 'Quizziz' platform on Vietnamese first year English majors' grammar achievement. Participants were sixty-three male and female students who were randomly divided into an experimental group of thirty-three students

and a control group of thirty students. Throughout the treatment that lasted for ten weeks, the experimental group answered twenty MCQ online quizzes on the gamified learning platform. On the other hand, the control group answered the same quizzes on paper. The study instrument was a pre-/post grammar test. Posttest results proved the remarkable gains in the experimental group's grammar achievement, thus providing support to gamified learning effectiveness in promoting EFL grammar acquisition. Hence, it was recommended to use gamified learning platforms to develop EFL learners' grammar.

b. Studies examining the application of flipped learning in EFL grammar classes

Al-Harbi and Alshumaimeri (2016) investigated the role of flipping grammar instruction in enhancing Saudi EFL female second year secondary school students' grammatical accuracy and positive attitudes. Participants were forty-three students who were randomly assigned into an experimental and a control group. The experimental group comprised twenty students, and they studied grammar according to the FLM; thus, they were asked to watch the grammar YouTube videos uploaded on Edmodo platform before class time. Then, during class time, the experimental group discussed any confusing grammatical points, answered varied grammar exercises and practised different collaborative as well as competitive activities. On the other hand, the control group studied the same grammar lessons following traditional instruction. Tools included a placement test, a posttest, a questionnaire and interviews. Treatment took place over a period of six weeks. Results proved that there was no statistically significant difference between both groups in terms of grammar achievement. However, it was found that the experimental group students had positive attitudes towards flipping grammar instruction; they particularly liked the instructional videos they watched before class time, and they enjoyed the collaborative and competitive tasks they did during class time. Hence, it was recommended to replicate this study at the university level and investigate the impact of flipping instruction on EFL students' reading, writing, listening and speaking skills.

Warden (2016) examined the impact of flipping grammar lessons on Italian EFL advanced level adult learners' perceptions and grammatical competence in speaking tasks. She, also, examined the challenges that faced the application of the FLM in grammar teaching. Participants were twenty-one male and female learners who experienced

traditional grammar teaching for the first three weeks of the study and flipped grammar learning for the subsequent three weeks of the study. The intervention lasted for six weeks. Tools included a pre-/post speaking test, class observations, a questionnaire and an interview. Results revealed that participants had favourable views of flipping grammar learning; they particularly enjoyed the pre-class online videos and the in-class speaking tasks where they used the grammar rules purposefully and authentically to communicate their ideas. Posttest results revealed the significant gains in the participants' grammatical accuracy due to flipping grammar instruction. The main challenge highlighted in this study was participants' need for further training in the FLM. Overall, it was concluded that implementing the FLM fostered the participants' grammar skills while engaging them in communicative speaking tasks.

In Taiwan, Bezzazi (2019) explored the influence of flipping grammar instruction on freshmen's grammatical proficiency. Participants were 132 non-English majors; they were engineering, business as well as arts and design majors. They were randomly divided into an experimental group and a control group. The experimental group students learned grammar rules through flipped instruction as they accessed videos and texts on the Portal and submitted online weekly assignments. Then, during class time, students worked in groups of four to discuss the materials, clarify confusing grammatical points, check their classmates' assignments and do grammar activities. The control group followed the traditional method where grammatical points were explained by the teacher, and assignments were done at home afterwards. The intervention duration was ten weeks. The study tools were a pre-/post grammar test and a survey. Results proved the significant improvement in the experimental group students' grammatical skills as well as their positive views of flipping grammar instruction.

Bulut and Kocoglu (2020) investigated the impact of applying the FLM on Turkish EFL vocational school students' grammar skills and perceptions. Participants were divided into a control group and an experimental group. The experimental group received flipped grammar instruction whereas the control group followed the regular method while studying the same grammar lessons. Tools were a pre-/post grammar test, a survey and an interview with a focus group. Posttest results proved that the experimental group significantly surpassed the control group in terms of grammar knowledge. Additionally, it was found that the experimental group had favourable views of flipping grammar lessons.

Nathawet (2020) examined the role of flipped instruction in fostering Thai EFL secondary stage learners' accurate application of grammatical rules in writing. Moreover, he explored the participants' views of the FLM. Participants were eighty eleventh graders who watched instructional videos on English tenses and subject-verb agreement before class time. During class time, students answered a quiz at the beginning of each session at the lead-in phase; then, they discussed the content of the videos to ensure their comprehension of the grammatical aspects and did independent writing assignments. Additionally, they collaboratively revised the grammatical accuracy of their classmates' written work. After class time, students evaluated the grammatical correctness of their finished written products. Instruments were a pre-writing test, a post-writing test, a questionnaire and an interview. Results proved that the implementation of the FLM fostered the participants' use of correct tense forms and enabled them to better follow subject/ verb agreement rules. It was found that most participants had favourable views of flipped instruction and enjoyed this learning experience. More studies were suggested to be implemented on different groups of EFL students to further examine the effectiveness of the FLM.

Saidah (2020) investigated the role of flipped learning on promoting EFL Indonesian students' grammatical competence. Participants were undergraduates specialized in Quran sciences in an Islamic university, and they were randomly divided into a control group of twenty-nine students and an experimental group of thirty-two students. Following the FLM, the experimental group watched grammar YouTube videos before class time. During class time, they answered quizzes and did varied activities to enhance their grammatical understanding and proficiency. The treatment lasted for seven sessions. On the other hand, the control group followed the traditional GTM. The study used a pre/post grammar test to gather its data, and flipped instruction was found effective in promoting grammar acquisition among the experimental group. Therefore, flipping grammar teaching was believed to be a creative instructional method.

Al-Naabi (2020) explored the influence of flipping instruction on fostering Omani EFL learners' grammar acquisition. He, also, examined participants' views of flipped learning. Participants were twenty-eight foundation year non-English majors. They were taught English simple and continuous tenses as well as adverbs of frequency through seven online videos that were accessed by the students on Edmodo platform. According to the flipped learning application, students watched these

videos before class time. Then, they did varied tasks during class time. Treatment was carried out over eight weeks. Tools included a pre-/post grammar test and interviews. Results proved the participants' substantial grammar development as a result of the treatment. Additionally, students had positive views of flipped grammar learning. Hence, using online platforms like the Moodle or Blackboard was recommended to discuss grammar videos before classroom interaction and activities.

Philippines and Tan (2020) examined the impact of flipping instruction on Filipino EFL ninth graders' grammar skills. Participants were forty students, and the intervention lasted for five sessions. The treatment sessions focused on the grammatical points of English tenses, prepositions, subject/verb agreement, pronoun/ referent correspondence and punctuation. Data were gathered through a pre/post grammar test, students' journals and observation notes. Posttest results proved the significant gains in the participants' grammatical proficiency. Moreover, participants believed that flipped instruction fostered their autonomy and collaboration, facilitated their grammar acquisition and increased their interest in using technology to acquire grammar.

Allahveysi and Aliakbari (2021) explored the influence of flipping grammar lessons on Iranian EFL advanced adult learners' grammatical accuracy. Participants (n= 40) were randomly divided into an experimental group and a control group of twenty students each. Tools were two versions of the grammar section in an ILETS test used as a pre-test and a posttest. Both groups received online instruction via Skype. However, the experimental group received grammar instruction according the FLM. Thus, grammar videos were sent to a WhatsApp group two days before the Skype session. Then, during class time, they discussed with their teacher confusing grammatical points and did varied grammar activities for fifty minutes. The control group students were not provided with any videos before class time, and during class time, the teacher explained the grammar lesson following the regular method on Skype. Then, the control group students did in-class grammar activities for ten minutes only; afterwards, the control group had home assignments via WhatsApp, Signal and Telegram groups and posted their answers after two days to get the teacher's feedback posted in these mobile groups. The intervention took place in twenty sessions. Posttest results proved that the experimental group had significant gains in their grammatical accuracy as a result of the FLM application. Therefore, the FLM was advocated as a fruitful strategy for teaching varied EFL skills.

Lubis and Rahmawati (2021) investigated the role of flipped learning on Indonesian EFL undergraduates' grammar skills. Participants were ninety-four information technology majors who displayed low, average and high linguistic proficiency levels. Treatment was carried out in sixteen sessions. Before each session, students employed their self-study skills as they explored the learning materials uploaded by the instructor on the LMS. During classroom sessions, students participated in group discussions and activities. After each session, students did individual as well as group assignments. Instruments were pre-/ mid and post-grammar tests and a questionnaire. Posttest results showed the significant improvement in the participants' grammar skills. The questionnaire results revealed that flipped learning increased the participants' motivation and autonomy as well as raised their grammar consciousness. Additionally, students' views of the challenges facing flipping grammar instruction included technical issues, poor vocabulary and limited time management skills.

Mandasari and Wahyudin (2021) explored the influence of flipping English grammar instruction on Indonesian undergraduates' satisfaction level. Participants were forty-eight intermediate level EFL learners who studied English grammar through the FLM with the help of an LMS called SPADA. Instruments were a questionnaire, interviews and observations. Results proved that flipping grammar instruction fostered their satisfaction level as well as their grammatical knowledge. It was, also, concluded that flipping grammar instruction promoted the participants' independence as they watched relevant YouTube videos before class time and participated in fruitful discussions and collaborative activities during class time. Therefore, it was recommended to implement flipped instruction in EFL classes.

Wang (2021) examined the effect of flipping grammar instruction on Chinese EFL university students' attitudes and views. Participants were thirty intermediate level learners who finished their pre-university education in China and received this flipped instruction in Australia to increase their linguistic proficiency before joining Australian universities. Tools included three questionnaires, class observations and interviews. According to the FLM, before class time, participants explored PowerPoint presentations and videos online; they, also, answered quizzes to assess their grammar self-study abilities. During class time, students were involved in varied activities to foster their grammar skills. Additionally, participants and their instructors used the We-chat platform

to discuss any confusing grammatical points. Results indicated that participants had favourable views of and positive attitudes towards flipped learning as it enhanced their grammar acquisition and independence. It was, also, found that these positive perceptions developed gradually with the passage of time as the students got more accustomed to the flipped learning paradigm.

Amini, Roohani and Jafarpour (2022) explored the influence of flipped instruction on Iranian EFL low-intermediate level secondary stage students' grammar achievement and anxiety levels. Participants were sixty students who were randomly and equally divided into a treatment group and a control group; hence, each group comprised thirty students. In this study, the focus was promoting the students' correct use of English tenses, possessive adjectives, adverbs of frequency, object pronouns and wh-questions. Hence, the treatment group students received flipped grammar instruction over a period of twelve weeks; they accessed Edmodo platform and watched educational videos as well as PowerPoint presentations before class time. Additionally, they discussed grammar points and practised varied activities during class time. Conversely, the control group followed the conventional teacher-led instructional method. Tools were a placement test, a pre- grammar test, a post- grammar test and an interview. Posttest results proved the significant gains in the treatment group's grammar achievement. Also, interviews with the treatment group showed that flipping grammar instruction lowered their anxiety level. It was, also, found that adopting this FLM made the treatment group more engaged, active and independent. Since this study focused on EFL low- intermediate level students, it was suggested that future studies should investigate the impact of flipping grammar instruction among students representing different EFL proficiency levels.

Cay and Karakus (2022) investigated the impact of flipping EFL grammar instruction on Turkish tertiary level students' attitudes and autonomous learning. Participants were twenty-four students, and they were equally divided into a control and an experimental group. Thus, each group consisted of twelve students. Tools included an autonomous learning scale and a scale measuring the students' attitudes towards learning grammar according to the FLM. These tools were administered on the control and experimental groups prior to and after applying the FLM on the experimental group students. Meanwhile, the control group studied the same grammatical points according to the usual method.

Additionally, qualitative data were obtained using open-ended questions posted on an online Google form to explore the experimental group's views of learning grammar according to the FLM. Results showed remarkable improvement in the experimental group's perception of independent learning as compared to the control group. Findings, also, revealed the experimental group's tangible positive attitudes towards learning grammar according to the FLM. Analyzing the experimental group's views showed that they enjoyed learning English grammar through flipped instruction as it reduced their anxiety, fostered their academic achievement, participation, independence as well as engagement.

Dinçer and Polat (2022) examined the impact of flipping instruction on Turkish EFL engineering students' grammar acquisition and attitudes. Participants were thirty-seven pre-intermediate level students, and they were randomly divided into a treatment group of nineteen students and a control group of eighteen students. The treatment group received grammar instruction according to the flipped classroom model while the control group received regular grammar instruction. Online materials and exercises were posted for the treatment group on Google Classroom. During class time, the treatment group students were involved in varied collaborative activities such as completing a chain story using conditionals, publishing an article describing their city using relative clauses, preparing oral presentations about their future plans and creating posters about celebrities using English tenses. Data were collected through pre-post grammar tests, a questionnaire and interviews. Results revealed the remarkable progress in the treatment group's grammar skills as compared to the control group. Besides, it was found that flipping grammar instruction enhanced the treatment group's engagement, participation and motivation. In addition, it was recommended to investigate the role of multimodal resources including animation and instructional videos in flipped learning.

Tafti and Tabatabaee-Yazdi (2023) explored the effect of virtually flipping grammar instruction on Iranian EFL high school learners' achievement and views. Participants were fifty female twelfth graders who were divided into a control group and a treatment group of twenty-five students each. The treatment group studied grammar online following the FLM; hence, YouTube videos, exercises, audios, PowerPoint presentations and problem-solving activities were uploaded online on an application called SHAD. The intervention lasted for ten

sessions over five weeks. The control group received traditional grammar instruction, and a pre-/post grammar achievement test was used as the study instrument. Results showed that the FLM significantly fostered the treatment group's grammar achievement. It was, also, proved that most of the treatment group students had positive views of flipping grammar instruction as it made them more active learners and enabled them to better use class time in useful activities. However, 11.7% of the treatment group students had negative views of flipped instruction due to the technical issues of unreliable internet connectivity and slow speed.

Commentary

Through reviewing relevant studies, the researcher was able to identify the recent practices for developing EFL grammar among undergraduates in different countries. Besides, examining previous researches enabled the researcher to pinpoint the steps and procedures of flipping grammar learning in varied contexts among students of different age groups. This, in turn, helped the researcher design the current program with its wide-ranging activities and assessment strategies.

Method

This study made use of both the Descriptive and the Quasi-experimental methods. The Descriptive Method was adopted while reviewing pertinent literature as well as while pinpointing the flipped learning program activities to enhance EFL engineering sophomores' grammatical achievement and competence. Additionally, it was employed while designing the current study pre-/posttests and program. The Quasi-experimental Method was followed during administering the tests, implementing the treatment, analyzing the data and interpreting the results.

Participants

To conduct the current study, a study group of an intact class of engineering sophomores (N= 36) at MSA University was randomly selected in the fall 2022 semester. Participants' age ranged from eighteen to twenty years old, and they were taught by the researcher throughout the treatment.

Research design

This study is primarily experimental. The pre-/posttest one study group design was followed to accomplish the study targets.

Study instruments

This study employed the following two instruments:

- ❖ a pre- /post grammar achievement test to measure the study group's overall grammatical knowledge as well as their achievement in each grammar sub-skill; and
- ❖ a pre-/ post grammatical competence test to measure the study group's overall ability to use grammatical rules in authentic writing and speaking situations in addition to their competence in each grammar sub-skill.

These instruments can be further illustrated as follows:

A. The pre-/ post grammar achievement test

This test was designed by the researcher and used before the program implementation to assess the study group students' overall grammatical achievement as well as their achievement in each grammar sub-skill. As a post-test, it was used to measure the effectiveness of the suggested flipped learning program in promoting the study group's overall grammatical achievement and their achievement in each of the specified grammar sub-skills.

To ensure the test validity, it was evaluated by a panel of jury consisting of five TEFL and assessment experts. This was carried out to assess test items difficulty level and suitability to engineering sophomores' linguistic proficiency level.

The jury confirmed that the test was valid. Furthermore, they modified and omitted some of the test items to boost its validity. The test final form had eighty items that were distributed in four different sections. The test first section included thirty-two MCQs that measured the students' ability to use the three specified tenses, comparative & superlative adjectives, quantifiers, partitives, if-conditionals, tag questions and the passive voice correctly. The second section of the test had twenty-two items, and in this section students were required to read the given sentences and do as shown between brackets. The second section measured the students' grammar sub-skills of using the reported speech, quantifiers, if-conditionals, the passive voice and relative clauses accurately. In the third section, students corrected the underlined 20 errors in the given twenty sentences. These errors were related to the incorrect use of the specified three tenses, quantifiers, partitives and question tags. In the fourth section, students were required to join the

given 6 pairs of sentences using correct relative clauses. In this test, students were asked to answer all the items on the question paper as they were not offered any separate answer sheets. For the grammar achievement test specifications, see table (1)

Table (1): The grammar achievement test specifications

Grammar sub-skill	Total No. of items	Question types	Items numbers
1. Present perfect progressive tense	6	MCQs & Error correction	1, 6, 15, 56, 60, 64
2. Past perfect tense	6	MCQs & Error correction	2, 7, 17, 58, 59, 62
3. Future perfect tense	6	MCQs & Error Correction	3, 8, 22, 61, 63, 65
4. Comparative & superlative adjectives	6	MCQs & Doing as shown between brackets	4, 5, 9, 10, 37, 40
5. Quantifiers	8	MCQs, Doing as shown between brackets & Error Correction	11, 12, 13, 14, 33, 34, 55, 57
6. Partitives	8	MCQs & Error correction	16, 18, 19, 66, 67, 68, 69, 73
7. Tag questions	8	MCQs & Error correction	25, 26, 29, 32, 70, 71, 72, 74
8. Relative Clauses	8	Doing as shown between brackets & Joining pairs of sentences	46, 47, 75, 76, 77, 78, 79, 80
9. If- conditionals	8	MCQs & Doing as shown between brackets	20, 21, 23, 24, 45, 48, 49, 54
10. Passive voice	8	MCQs & Doing as shown between brackets	27, 28, 30, 31, 50, 51, 52, 53
11. Reported Speech	8	Doing as shown between brackets	35, 36, 38, 39, 41, 42, 43, 44

As shown in table (1), the test items were varied to accurately measure the participants' grammar achievement before and after the intervention. Students' achievement in each of the specified three tenses and in comparative and superlative adjectives was measured six times throughout the test. Additionally, students' achievement in each of the other seven grammar sub-skills was measured eight times throughout the test.

Based on the test piloting results, the time allotted for the grammar achievement test was ninety minutes, including giving the students clear guidelines on how to take the test. As the test had eighty items, it was marked by the researcher out of eighty as each item carried one mark. A zero was given to left or incorrect answers. While scoring

the students' answers in sections two, three and four, spelling errors were disregarded, thus focusing on evaluating the students' achievement in the specified eleven grammar sub-skills.

- **Test piloting**

Before administering the test on the study participants, it was piloted on a random sample of twenty-five engineering sophomores at MSA University. Pilot study results revealed that a period of ninety minutes would provide the students with ample time to comfortably read the test instructions, answer the test eighty items and revise their answers. The test duration was calculated by adding the time taken by the fastest student to complete the test (70 minutes) to the time taken by the slowest student (110 minutes) to finish the test and dividing the sum by two. The pilot study revealed that the students faced no difficulty understanding the test items. Students of the pilot study were not involved in the current treatment.

- **Test reliability**

To measure the grammar achievement test reliability, it was taken by a random sample of twenty-five engineering sophomores. After two weeks, the test was administered on the same twenty-five students. The calculated Pearson reliability coefficient between the test/ re-test scores was 0.82, which ascertained the test reliability.

B. The pre-/post grammatical competence test

This test was designed by the researcher to evaluate the study group's use of the specified eleven grammar sub-skills in authentic writing and speaking contexts before the program application. As a post-test, it measured the effect of the proposed flipped learning program on enhancing the study group's overall grammatical competence as well as their ability to apply each of the specified grammar sub-skills in real-life situations.

The test initial form was submitted to a panel of jury consisting of five TEFL and assessment experts to guarantee its validity. The jury members were requested to assess the test speaking and writing tasks as well as to appraise their suitability to EFL engineering sophomores' linguistic level.

The panel of jury assured that the test was valid. They approved of the test varied tasks and highlighted that these tasks measured the students' application of the specified grammar sub-skills in wide-ranging communicative contexts. Additionally, they modified the fourth writing

task and made it paragraph writing instead of short essay writing to shorten the test duration and make it more manageable for the test takers. They, also, added clues and time expressions to enable the students to use the passive voice correctly while describing the given pictures in the fourth speaking task.

The final form of the test consisted of two parts: writing and speaking tasks. Part (A) had five writing tasks while Part (B) had six speaking tasks. Each task measured the students' competent use of one of the specified eleven grammar sub-skills in authentic situations. The first three writing tasks measured the students' ability to convey messages using accurate forms of the present perfect progressive, past perfect and future perfect tenses. The last two writing tasks measured the students' accurate use of quantifiers and partitives to convey meaning. As for the six speaking tasks, they assessed the students' ability to communicate effectively using comparative and superlative adjectives, tag questions, relative clauses, if-conditionals, passive voice and reported speech. For the grammatical competence test specifications and a detailed description of its authentic written and spoken tasks, see table (2).

Table (2): The grammatical competence test specifications and tasks

Grammar sub-skill	Total No. of items	Real-life task
1. Present perfect progressive tense	6	Writing a reply to a friend's letter where the students mentioned six activities they started but have not finished yet using the present perfect progressive tense and the given guiding ideas
2. Past perfect tense	6	Writing a story about the six home activities that the students had done before they headed to college yesterday using the past perfect tense, the given six pictures and the highlighted time clues
3. Future perfect tense	6	Writing an informal email to a friend using the future perfect tense to talk about six targets that the students intend to achieve in five years' time
4. Comparative & superlative adjectives	6	Orally comparing between the given six sets of photos using comparative and superlative adjectives and the highlighted criterion next to each set of photos
5. Quantifiers	8	Writing a paragraph to describe the students' city or town using the given quantifiers and eight nouns of their choice
6. Partitives	8	Writing a shopping list using correct partitives for the given eight pictures.

7. Tag questions	8	Orally checking the accuracy of the given eight pieces of information using question tags
8. Relative Clauses	8	Orally providing relevant information about given people, places and times using six relative clauses, cue cards and guiding pictures
9. If-conditionals	8	Giving quick short oral responses to eight 'What if questions' in a speed competition
10. Passive voice	8	Orally describing the given eight pictures using the passive voice, the given clues and time expressions
11. Reported speech	8	Using indirect speech to orally report the content of an eight-sentence letter to a younger brother

Based on the test piloting results, the test duration was eighty minutes where the five writing tasks were carried out in one hour whereas the six speaking tasks took twenty minutes. Students answered the five writing tasks in the spaces given on the question paper. The six speaking tasks were carried out in individual interviews between the students and the researcher. Students' responses to the speaking tasks were recorded and transcribed by the researcher after getting the students' approval.

• **Test scoring criteria & procedures**

Using well-defined marking criteria, the test scoring was carried out by the researcher and two other raters. Part (A) was marked out of thirty-four while part (B) was marked out of forty-six. Thus, the test total marks were eighty. In test writing part, errors in spelling and capitalization were ignored as long as the students were able to convey meaningful messages using correct grammatical forms. In the test speaking part, students' pronunciation errors and fluency problems were overlooked as the focus was on applying grammatical rules accurately in real-life speaking situations. In both parts, students got one mark for each correct grammatical form produced in the authentic writing and speaking tasks, and a zero was given for wrong or left answers.

The test raters received sufficient training in its marking criteria before evaluating the study group's accurate use of the specified eleven grammar sub-skills in communicative tasks. To ensure inter-rater reliability, Cronbach's Alpha was calculated, and it was 0.84 (significant at 0.01 level), thus ensuring consistency among the three scorers. The average of the three raters was pooled to get the students' overall grammatical competence scores as well as their scores in the competent application of each grammar sub-skill in the test writing and speaking tasks.

- **Test piloting**

The test was piloted on a random sample of twenty-five engineering sophomores before administering it on the study group. The test piloting process proved that the test items were adequate and doable within eighty minutes. The test duration (eighty minutes) was estimated by adding the time taken by the fastest student to finish the test (seventy minutes) to the time taken by the slowest student to do the test (ninety minutes) and dividing the sum by two. It is worth noting that the pilot study students did not receive the current treatment.

- **Test reliability**

The test/ re-test administration was adopted to guarantee the test reliability. Hence, the same test was administered twice on twenty-five EFL engineering sophomores with a period of two weeks in between. The calculated Pearson reliability coefficient was 0.80; therefore, the test was found reliable.

Treatment: The Suggested Flipped Learning Program

After the study group students took their grammatical achievement and competence pre-tests, they received the current study intervention through a suggested flipped learning program to develop their grammatical knowledge and ability to use the specified grammar sub-skills to convey meaning in real-life situations. *The program components can be described as follows:*

Aim

The program aim was fostering Egyptian EFL engineering sophomores' grammatical achievement and competence. This was accomplished through involving the study group in flipped learning activities throughout the intervention.

Learning objectives

By the end of this program, students were expected to develop their overall grammatical achievement and competence as well as their achievement and competent use of the specified eleven grammar sub-skills. Precisely, they were anticipated to correctly use **(a)** the present perfect progressive tense, **(b)** the past perfect tense, **(c)** the future perfect tense, **(d)** comparative and superlative adjectives, **(e)** quantifiers, **(f)** partitives, **(g)** tag questions, **(h)** relative clauses, **(i)** if-conditionals, **(j)** the passive voice and **(k)** reported speech in given sentences as well as in authentic writing and speaking situations.

Content

The program content comprised (i) seventeen short instructional YouTube videos, (ii) twelve grammar podcasts, (iii) ten PowerPoint presentations, (iv) eleven YouTube grammar songs, (v) eleven short YouTube video clips and (vi) eleven YouTube animated conversations. It, also, included two short YouTube videos whose content was reported using indirect speech during the program tenth session. The program instructional videos, podcasts and presentations were uploaded by the researcher on the university LMS (the Moodle) and reviewed by the students before class time. The grammar podcasts were downloaded from and accessed on BBC Learning English, 6-minute grammar website.

The YouTube grammar songs were listened to by the students as a warm-up activity at the beginning of the program session, and each song covered one of the specified grammar sub-skills. The YouTube short video clips were extracted from English movies, cartoons, TV series and shows. These clips provided authentic examples of how the specified grammar sub-skills were used in real life communicative contexts, and they were watched and analyzed by the students during class time immediately after listening to the grammar songs. Moreover, the YouTube animated conversations were analyzed by the students during class time to show how grammatical rules were authentically applied to convey ideas and emotions.

The program videos, podcasts, songs, clips and animated conversations were carefully selected by the researcher to ensure their suitability to EFL engineering sophomores' linguistic level, age and cultural background. They were, also, meticulously chosen as they were directly related to the specified grammar sub-skills and presented these sub-skilled in a motivating interesting manner. Additionally, they were quite comprehensible as they were recorded by native English speakers at normal pace. The program content can be further explicated in the following six tables:

Table (3) Titles and URLs of YouTube instructional videos uploaded on the Moodle and watched before class time

Grammar Sub-skill	Video Title	URL
1. Present Perfect Progressive Tense	"Present Perfect Progressive-Grammar & Verb Tenses"	https://youtu.be/iCzJN0g5NHQ
2. Past Perfect Tense	"I HAD LEARNED... The Past Perfect Tense English Grammar Lesson with Pronunciation & Examples"	https://youtu.be/Jjj5-KnpdIQ
3. Future Perfect Tense	"The Future Perfect Tense- BBC English Class"	https://youtu.be/UNF8Vnrpxno

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Grammar Sub-skill	Video Title	URL
4. Comparative & Superlative Adjectives	"Comparative & Superlative Adjectives- English Grammar Lesson"	https://youtu.be/oGr7l3q7SMI
5. Quantifiers	"Quantifiers in English- Some or Any? Much or Many? How to Use?"	https://youtu.be/2rH3zGr0u1g
6. Partitives	"Shopping List- Partitives- How to Count Food"	https://youtu.be/mfuBIXwzH9Q
7. Tag Questions	"Tag Questions"	https://youtu.be/YTbGMGcyLPo
8. Relative Clauses	"Relative Clauses in 4 Steps"	https://youtu.be/ftZr1_Ny8L8
9. If- Conditionals	"Zero Conditional- English Grammar Lesson"	https://youtu.be/oBf1gXlrcqY
	"First Conditional"	https://youtu.be/s59ygVYxpag
	"Second Conditional"	https://youtu.be/iZnL2cb_w20
	"Third Conditional"	https://youtu.be/ve4Tk78j6Nc
10. Passive Voice	"How to Use the Passive Voice- English Grammar Lesson"	https://youtu.be/nkAyggAM1q4
11. Reported Speech	"How to Use Reported Speech in English"	https://youtu.be/6G3a24YTYfA
	"How to Use Reported Speech for Questions"	https://youtu.be/C0FmF_Do1fg
	"How to use REPORTED REQUESTS, ORDERS and ADVICE in English"	https://youtu.be/fRpexjk21DA
	"How to Use Reported Speech with Modal Verbs in English"	https://youtu.be/_lpab39d16M

As shown in table (3), the above seventeen YouTube instructional videos offered native speakers' simple, clear and direct explanation of the specified grammar sub-skills. They were uploaded on the Moodle three days before class time to give the students enough chances to watch and study the grammatical rules at their pace whenever and wherever they liked. Students were encouraged to replay these videos as many times as they wished to ensure that they fully grasped their content before class time. Besides, these videos were short, brief and to the point to engage the students without boring them or placing unnecessary mental processing load upon them. Additionally, these videos were purposefully used to engage all the students in general and visual as well as auditory learners in particular.

Table (4): Titles of the BBC Learning English 6-minute grammar podcasts uploaded on the Moodle and listened to before class time

No.	Podcast Title
1.	"Present Perfect Continuous"
2.	"Past Perfect"
3.	" Future Perfect"
4.	"Comparatives and Superlatives"
5.	" Quantifiers"
6.	"Question Tags"
7.	"Defining and Non-defining Relative Clauses"
8.	"Zero and First Conditionals"
9.	"The Second Conditional"
10.	"The Third Conditional"
11.	"Active and Passive Voice"
12.	"Reported Speech"

As highlighted in table (4), the above twelve podcasts were uploaded on the Moodle three days before class time. Students were stimulated to listen to these podcasts at their own pace as many times as they liked whenever and wherever it was convenient for them. Each podcast took six minutes only, and they were all recorded by native British English speakers, thus ensuring their brevity, clarity and accuracy. The program twelve podcasts were used to enable all the participants in general and auditory students in particular to easily comprehend the grammatical rules before they apply these rules in real-life collaborative activities during class time.

Table (5): Titles and URLs of the YouTube grammar songs listened to as a warm-up activity at the beginning of each in-class session

Session No.	Video Title	URL
One	"Present Perfect Continuous Song"	https://youtu.be/5Uo0jdwxxJI
Two	"Past Perfect Tense- Examples in Songs"	https://youtu.be/xPtqcXlrDMw
Three	"The Future Perfect Song- Grammar Made Simple"	https://youtu.be/wD0XY-UISMU
Four	"Comparative-Superlative Song"	https://youtu.be/872gqAJjc1g
Five	"Sing with Me: Quantifier Song"	https://youtu.be/2-hHc-uJnRk
	"How Much How Many Song"	https://youtu.be/VwSRoLUCXmI
Six	"Tag Questions Song"	https://youtu.be/6jzu8Fg24kw
Seven	"The Relative Clause Song"	https://youtu.be/HbVIIuhgg9Y
Eight	"Conditional Song- If You Study, You Will Pass."	https://youtu.be/wgc8gOi0nyg
Nine	"Passive Voice Song"	https://youtu.be/ARaEpSAD-ng
Ten	"Reported Speech Song"	https://youtu.be/83cx1e5e6CA

As illustrated in table (5), the eleven grammar songs listened to as a warm-up activity at the beginning of each session intentionally covered the specified eleven grammar sub-skills. Moreover, they created a fun relaxing classroom atmosphere that boosted the students' motivation to participate in the following authentic collaborative as well as competitive

classroom activities. The tempo, lyrics, rhythm and clear pronunciation of these songs involved the students and aroused their interest in learning and applying grammatical rules in everyday life contexts.

Table (6): Titles and URLs of the YouTube clips watched and analyzed during class time

Session No.	Clip Title	URL
One	"Present Perfect Continuous in Movies- Hollywood English"	https://youtu.be/QRpRL9LLXrA
Two	"Past Perfect (HAD DONE), Examples in Movies and TV Shows Hollywood English"	https://youtu.be/E3NnmViTsX8
Three	"Future Perfect Tense"	https://youtu.be/VuCAxJNSs8Y
Four	"Learn English Grammar Comparatives and Superlatives from Movies and Cartoons"	https://youtu.be/LTAeYIDcZ80
Five	"Quantifiers- Grammar Genius A"	https://youtu.be/hiVzaKhscjU
	"Determiners- Quantifiers- Grammar Genius B"	https://youtu.be/B3CNzKz6GUU
Six	"Tag Questions in Movies"	https://youtu.be/-pWAA8IRW0A
Seven	"Relative Clauses: Movies & TV Series"	https://youtu.be/tv1xZGmT3z0
Eight	"Conditionals in Movies"	https://youtu.be/EDBEJtWK6hc
Nine	"The Passive Voice in Harry Potter Films"	https://youtu.be/Ur0jc9N-d-Q
Ten	"Reported Speech: Movies & TV Series"	https://youtu.be/xZ16donEANw

As demonstrated in table (6), the program eleven YouTube short video clips offered authentic illustration of how grammatical rules can be accurately applied in daily conversations to communicate effectively. As these clips were parts of famous English movies, cartoons as well as TV series and shows, analyzing them heightened the students' consciousness of the grammatical rules at hand and fostered their involvement in the session activities.

Table (7): Titles and URLs of the YouTube animated conversations watched and analyzed during class time

Session No.	Video Title	URL
One	"What Have You Been Doing? - Present Perfect Continuous"	https://youtu.be/AKzqRMA_1lo
Two	"What Had They Done?- Past Perfect Tense"	https://youtu.be/-TrE6VdtgLE
Three	"Ten Years from Now-Future Perfect Tense"	https://youtu.be/ZX53YSKPssQ
Four	"The Most Important Thing: Comparatives and Superlatives"	https://youtu.be/JiI1UmfgrM
Five	"How Many Loaves of Bread Do We Need?-Quantifiers & Partitives"	https://youtu.be/Xdw8AFxyC0k
Six	"Question Tags (Conversation)"	https://youtu.be/2JHWXIWKloI
Seven	"Relative Clauses Animation: Grammar in Focus"	https://youtu.be/kH3sY8aI4sk

Eight	"If I Were You- Conditionals in English"	https://youtu.be/gxaTP6zF9Vc
Nine	"English Conversation with a Friend: A Picnic (Passive Voice)"	https://youtu.be/M7pcZXVSS2Y
	"I Was Arrested by the Police: The Passive Voice"	https://youtu.be/7FBr-G0ur9I
Ten	"He Said He'd Had a Car Accident- Reported Speech"	https://youtu.be/0VzDQPeHFNM

As clarified in table (7), after analyzing the short video clips, the above eleven animated YouTube conversations were played twice during class time. During the first time, students discussed the main ideas conveyed in each conversation. While playing the conversations for the second time, students identified examples in the conversations where the specified grammar sub-skills were accurately applied. These animated conversations were specifically chosen as they were engaging, concise and clearly pronounced by native English speakers at normal pace. Additionally, they included several instances of the stated grammar sub-skills correct application in daily situations.

Table (8): Titles and URLs of the two YouTube short videos whose content was reported by the students using indirect speech

Session No.	Video Title	URL
Ten	"About My Mother"	https://youtu.be/K2i0fbYzDQc
	"My Favourite Hobby"	https://youtu.be/oQo0C6YaGrY

As indicated in table (8), during the program tenth session, the class was divided into two teams, and each team watched only one of the above videos. Then, each team was requested to use indirect speech to report the speaker's utterances in the specified video to members of the other team. By so doing, students practised using indirect speech in an authentic speaking activity to promote their grammatical competence.

Activities

Throughout the current flipped learning program implementation, the study group students practised various activities whether individually, in pairs or in-groups. These activities took place before class time, during class time as well as after-class time, and they aimed at developing EFL engineering sophomores' grammatical achievement and competence.

Three days before class time, students logged into the Moodle where they **(a)** watched the uploaded instructional YouTube videos, **(b)** listened to the 6-minute grammar podcasts, **(c)** went through the uploaded PowerPoint presentations and **(d)** read the uploaded soft PDF copy of relevant units in the grammar reference book titled "*English Grammar in Use*" and written by Raymond Murphy in 2019.

Each week a day before class time, students logged onto the Moodle and submitted their answers to an online 15-item quiz relevant to

the grammatical sub-skill at hand. Questions of the online quizzes varied to include **(i)** filling in the blanks in given sentences using correct forms of the verbs between brackets in the present perfect progressive, past perfect and future perfect tenses, **(ii)** filling in the gaps in given sentences using either the comparative or the superlative forms of the adjectives between brackets, **(iii)** answering MCQs to select correct quantifiers and correct verb forms in if-conditionals, **(iv)** matching the given partitives in a box with suitable nouns to correctly complete sentences, **(v)** completing given sentences with correct question tags, **(vi)** joining pairs of sentences using appropriate relative clauses, **(vii)** changing given sentences from the active to the passive voice and **(viii)** changing given sentences from direct into indirect speech.

During class time, students practised diverse activities to foster their grammatical achievement and competence. Thus, in the warm-up stage at the beginning of each session, students listened to the assigned songs covering the specified grammar sub-skills and were asked to extract examples from the songs where these grammatical rules were correctly applied. Then, they watched carefully selected YouTube short clips taken from movies, cartoons as well as TV shows and series, and they were required to identify instances where these grammatical rules were accurately used. After that, they watched YouTube animated conversations where the specified grammar sub-skills were used. After discussing the main ideas of these animated conversations, students were requested to highlight examples from the conversations where these grammatical rules were well-observed.

To further enhance the students' grammatical achievement during class time, they were asked to **(a)** correct the underlined grammatical errors covering the specified three tenses, comparatives and superlatives, quantifiers, partitives, question tags, relative clauses, if-conditionals and the passive voice in given sentences, **(b)** fill in the gaps in given sentences using correct verb tenses, quantifiers, partitives and question tags, **(c)** join given pairs of sentences using the past perfect tense and the time conjunctions between brackets, **(d)** rewrite given sentences in the future perfect tense using the highlighted time expressions between brackets, **(e)** complete given sentences using either comparative or superlative forms of the adjectives between brackets, **(f)** combine given two sentences using relative clauses and if-conditionals, **(g)** re-write active voice sentences in the passive voice beginning with the given phrases between parentheses and **(h)** change given direct speech sentences into indirect speech.

To develop the students' grammatical competence, they practised wide-ranging authentic speaking and writing activities during class time. These activities can be highlighted in the following table.

Table (9): Authentic speaking and writing activities practised during class time to promote the students' grammatical competence

Session No.	Grammatical Sub-skill Practised	Activity
One	Present Perfect Progressive Tense	Writing, conducting and orally reporting the findings of a ten-item survey among classmates beginning with ' <i>How long have you been...?</i> '
		Using given picture cards to ask and answer questions about what people have been doing in the these pictures
Two	Past Perfect Tense	Writing short imaginary stories using the past perfect tense about seven activities students did before going on a trip to America last summer
		Working in pairs to ask and answer questions while describing the students' yesterday activities backwards using the past perfect tense
Three	Future Perfect Tense	Using given cue cards to write and orally present eight actions that the students anticipate will be completed by the year 2030
		Doing a role play where a TV presenter interviews a famous celebrity to talk about five future actions to be completed this time next year
Four	Comparative & Superlative Adjectives	Doing a decision-making role play where a man and his wife go shopping in a hyper market and decide to buy some electrical appliances after comparing between varied brands in terms of their sizes, prices, quality, electricity-saving ability, warranty periods, maintenance and after-sale customer service
		Writing, conducting and orally reporting the results of a ten-question survey using comparative and superlative adjectives to ask about classmates' hobbies, interests, preferred food, TV shows, courses, friends and sports
Five	Quantifiers & Partitives	Using quantifiers and partitives to do a role play of a mother, a father, a daughter and a son who stand together in the kitchen, look in the fridge and cupboard to write down a shopping list and discuss the amount of groceries, dairy products, meat, fruit and vegetables they need to buy
		Writing and orally presenting a cake recipe using the words ' <i>flour</i> ', ' <i>butter</i> ', ' <i>sugar</i> ', ' <i>eggs</i> ', ' <i>milk</i> ' and ' <i>baking powder</i> ' and adequate partitives
		Writing a ten-sentence blog describing Sharm Elsheikh to tourists who wish to visit Egypt using the quantifiers ' <i>many</i> ', ' <i>much</i> ', ' <i>little</i> ', ' <i>few</i> ', ' <i>some</i> ', ' <i>any</i> ', ' <i>a little</i> ' and ' <i>a few</i> ' and the given guiding nouns
Six	Tag Questions	Working in pairs to check the accuracy of the information given on cue cards using question tags
		Designing and administering ten-item questionnaires among classmates using affirmative and negative tag questions in varied tenses
Seven	Relative Clauses	Using given ten newspaper pictures and relative clauses to do a role play of a young man who is describing famous

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		Egyptian people and places to a British friend
		Using cue cards and relative clauses to describe given times and places
		Playing a guessing game to describe people, objects, places and times using relative clauses
Eight	If- Conditionals	Using zero-conditionals to design posters with five scientific facts, then posting them on the classroom walls and orally presenting them
		Using the situations given on cue cards to form first and third conditionals
		Using the expressions ' <i>If I were you</i> ', ' <i>If I were in your shoes</i> ' and ' <i>If I were in your place</i> ' to do a problem-solving activity where the students play the role of a doctor who is giving medical advice to an overweight patient on how to become physically fit
		Writing and orally answering eight 'What if questions' using zero, first, second and third conditionals
Nine	Passive Voice	Using smartphones and the passive voice to participate in a research race identifying inventors who masterminded varied technological devices
		Using given picture cards and guiding words to write a ten-sentence news report describing a crime scene and then orally presenting it in class
Ten	Reported Speech	Doing a role play where the CEO of a car manufacturing company held a meeting with his subordinates to report the content of a business email sent by the company manager regarding the new marketing plan
		Reporting to classmates the content of two short YouTube videos titled ' <i>About My Mother</i> ' and ' <i>My favourite Hobby</i> '

As shown in table (9), the real-life writing and speaking tasks practised throughout the program sessions were quite varied and engaging. Moreover, they enabled the students to purposefully use the specified grammar sub-skills to convey meaningful messages in authentic settings.

After class time, students logged into the Moodle and did further grammar achievement activities using the PDF copy of the previously highlighted grammar reference titled "*English Grammar in Use*" and written by Raymond Murphy in 2019 for all the grammar sub-skills except for partitives. After doing these activities, students checked their answers using the answer key at the end of the book. As for partitives, the researcher uploaded 16 MCQs to help the students practise using them in given sentences. The answer key to these MCQs was, also, uploaded on the Moodle afterwards to help the students check their answers. For a detailed description of these grammar achievement activities, see the following table.

Table (10): Grammar achievement activities practised after class time

Grammar sub-skill	After Class Activity	No. of items	Activity Details
1. Present Perfect Progressive Tense	Writing a question for each given situation using the present perfect progressive tense	5	Exercise 9.2 on page 19
	Reading the highlighted situations and completing the given sentences using the present perfect progressive tense	5	Exercise 9.3 on page 19
2. Past Perfect Tense	Reading the given situations and writing sentences in the past perfect tense using the words between brackets	10	Exercise 15.1 on page 31
3. Future Perfect Tense	Reading the given sentences and putting the verbs between brackets in the correct form using either the future continuous or the future perfect tense	9	Exercise 24.3 on page 49
4. Comparative & Superlative Adjectives	Completing given sentences using comparative adjectives	12	Exercise 105.1 on page 211
	Completing given sentences using the superlative form of the adjectives in the box	7	Exercise 108.1 on page 217
5. Quantifiers	Putting in 'much', 'many', 'little' or 'few' in given sentences	9	Exercise 87.3 on page 148
	Putting in 'little', 'a little', 'few' or 'a few' in given sentences	10	Exercise 87.5 on page 148
6. Partitives	Answering MCQs on common food partitives	16	An online exercise uploaded on the Moodle
7. Tag Questions	Reading the given sentences & completing them using suitable question tags	18	Exercise 52.1 on page 105
8. Relative Clauses	Joining pairs of sentences using 'who', 'that' or 'which'	5	Exercise 92.2 on page 185
	Telling a friend about the people that the students met in a party yesterday using either 'who' or 'whose' in addition to the given information	6	Exercise 94.1 on page 189
	Completing the given sentences using either 'who', 'whom', 'whose' or 'where'	8	Exercise 94.3 on page 189
9. If-Conditionals	Using the given information and words between brackets to write sentences beginning with 'if'	5	Exercise 38.4 on page 77
	Writing a sentence with 'if' for each of the given situations	5	Exercise 39.2 on page 79
	Putting verbs in the correct form in the given if-conditionals	9	Exercise 40.1 on page 81
10. Passive Voice	Changing the given sentences from the active to the passive voice	8	Exercise 42.4 on page 85
	Completing sentences using given verbs in the passive voice	12	Exercise 43.1 on page 87
11. Reported Speech	Reading the given imaginary mini-dialogues between the students and their friends and reporting the speech to another friend	10	Exercise 47.1 on page 95
	Reading direct speech sentences, changing them into indirect speech and using the reported speech to fill in the gaps in given sentences.	8	Exercise 48.3 on page 97

As highlighted in table (10), the diverse grammatical achievement exercises answered by the students after class time helped them practise and acquire the specified grammar sub-skills. Besides, they fostered the students' independent learning capabilities.

After each session, to foster the students' grammatical competence, each student evaluated his/ her performance in the grammatical competence speaking and writing tasks done during class time with the help of the following self-evaluation form.

Self- Evaluation Form	
Reflect upon your in-class performance in the grammatical competence speaking and writing tasks as you tick the box that best suits you.	
1. I was able to use the grammatical rule/pattern to convey messages in real-life speaking and writing tasks. always <input type="checkbox"/> often <input type="checkbox"/> sometimes <input type="checkbox"/> rarely <input type="checkbox"/> never <input type="checkbox"/>	
2. I needed clearer teacher's instructions to use the grammatical rule/pattern in communicative situations. Yes <input type="checkbox"/> No <input type="checkbox"/>	
3. I needed more preparation time to correctly use the grammatical rule/pattern in speaking and writing tasks. Yes <input type="checkbox"/> No <input type="checkbox"/>	
4. Classmates' and teachers' feedback helped me correct my errors and accurately use the grammatical rule/ pattern effectively to communicate ideas and emotions. Yes <input type="checkbox"/> No <input type="checkbox"/>	
5. In order to master using the grammatical rule/pattern at hand in future real-life situations, I think I need more guided practice. Yes <input type="checkbox"/> No <input type="checkbox"/>	

Using the above form, students discussed their findings with their instructor in one-to-one conferences, during office hours as well as in the next in-class session if needed.

Treatment duration

After designing the present program, five TEFL experts were asked to offer their suggestions on how to enrich it. Then, two sessions were randomly chosen and implemented on a random sample of twenty-five engineering sophomores. Piloting the program provided evidence that it was adequate for the students' linguistic level, age and cultural background.

Initially, the pilot study students found flipped learning quite demanding as it required them to study the materials uploaded on the Moodle before class time on their own. Then, they maintained that studying these materials helped them become quite prepared for the in-

class activities and enhanced their independent learning capabilities. Additionally, the pilot study students maintained that the program materials and activities were quite diverse, motivating and engaging in a way that fostered their accurate application of the grammatical rules at hand. Specifically, they enjoyed the instructional videos and podcasts played at their convenience before class time. Moreover, they liked the songs, short clips and animated videos played in each session and stated that they enriched the session and made grammar learning an interesting experience. They, also, liked the authentic speaking and writing activities practised during class time and maintained that these activities helped them apply grammatical rules in real-life communication. Additionally, they liked the grammatical achievement activities practised whether before, during or post-class time. After class time, they found evaluating their performance in authentic speaking and writing activities an enlightening task that raised their awareness of their strengths, weaknesses and improvement areas that could foster their accurate use of grammar in real-life situations.

Based on the pilot study results, each session needed two hours to appropriately implement its activities. In a two-hour introductory session, the researcher highlighted the program aim, content and activities. After that, the program ten sessions were implemented over a period of two months and a half during the fall semester of the 2022- 2023 academic year. The treatment started on October 8th., 2022 and ended on December, 22nd., 2022.

The suggested teaching strategy

The researcher adopted a suggested teaching strategy throughout the program sessions. This strategy was based on combining the grammar FLM implemented in the studies of Lubis and Rahmawati (2021) and Dinçer & Polat (2022). It, also, adopted the after- class time self-evaluation strategy highlighted by Öztürk & Çakıroğlu (2021).

Based on this teaching strategy, the FLM was implemented in three phases: before, during and after class time. *The following is an explanation of these phases:*

I. Before class time

- a. Each week three days before class time, students logged onto the university LMS (The Moodle) and followed the given hyperlinks to watch the YouTube instructional videos relevant to the specified grammar sub-skills.
- b. They, also, went through the PowerPoint presentations uploaded on the Moodle covering aspects of these grammatical skills.

- Additionally, they listened to the BBC 6-minute grammar podcasts posted on the Moodle to better grasp the grammatical rules at hand.
- c. To gain more in-depth information about the grammatical rules at hand, students used the Moodle to read the uploaded soft PDF copy of relevant units in the grammar reference book titled "*English Grammar in Use*" and written by Raymond Murphy in 2019.
 - d. To check students' understanding of the posted online grammar materials, each week a day before class time they logged onto the Moodle and submitted their answers to an online 15-item quiz relevant to the grammatical skill at hand.

II. During class time

- a. As a warm-up activity, at the beginning of each session, students listened to a song and watched a short clip relevant to the grammar sub-skill at hand. Then, they were asked to identify and discuss examples of the grammatical rules in the songs they listened to and the clips they watched.
- b. After that, students checked with the teacher their answers to the online quiz and received feedback on their performance in the quiz.
- c. Next, students worked in collaborative groups of four students to discuss and clarify the confusing grammatical points they encountered in the online materials posted on the e-learning. The teacher rotated among the students to listen to their comments and questions. She, also, worked as a guide and a mentor, encouraging students' fruitful discussions and interfering only when needed to clarify any misunderstanding.
- d. Afterwards, each session, students watched one or more than one authentic animated conversation where the correct grammatical forms relevant to the sub-skills to be developed were heavily used. Students watched these animated conversations twice. For the first time, they watched them and worked in groups of four students to check their comprehension of the conversations content as they answered the comprehension checking questions displayed by the teacher on the data show. For the second time, students worked in competitive groups to extract and write down examples of the grammatical patterns at hand on an A3 paper using colored markers. In this competition, the winning group was the one that was able to extract the biggest number of these

grammatical forms from the conversation. The winning group received their classmates' applause.

- e. To enhance the students' achievement of the grammatical rules at hand, each session students worked in competing pairs to carry out varied activities like (i) correcting the underlined grammatical errors in given sentences covering the three specified tenses, comparatives and superlatives, quantifiers, partitives, question tags, relative clauses, if-conditionals and the passive voice, (ii) filling in the gaps in given sentences using correct quantifiers, partitives and question tags, (iii) completing given sentences using either the comparative or superlative forms of the adjectives between brackets, (iv) combining given two sentences using relative clauses and if-conditionals and (v) changing given direct speech sentences into indirect speech.
- f. To foster the students' grammatical competence, they worked together in collaborative and competitive writing as well as speaking tasks. As highlighted earlier in table (9), these tasks included (i) writing and conducting surveys and questionnaires using the present perfect progressive, tag questions as well as comparatives and superlatives, (ii) role playing using quantifiers, partitives, the future perfect tense and second if-conditionals, (iii) writing a news report to describe a crime scene using the passive voice, (iv) playing a guessing game using relative clauses, (v) participating in a research race using the passive voice, (vi) designing and orally presenting posters using zero-conditionals, (vii) writing stories using the past perfect tense and (viii) reporting the content of an e-mail to employees in a business meeting. To clarify, some of these communicative tasks can be further explained as follows:
 1. In session one, students worked in groups of four to write down ten survey questions beginning with '*How long have you been...?*' Examples of the survey questions written by the students included '*How long have you been learning English?*', '*How long have you been practising sports?*', '*How long have you been living in your current neighbourhood?*' and '*How long have you been decorating your house?*' Then, investigators from each group moved around the class to ask these survey questions and write down their classmates' responses. Afterwards, representatives from each group reported their survey findings to the rest of the class.

2. In session three, students worked in pairs to do a role play where a TV presenter interviewed a famous celebrity to talk about his/her future plans using the expression *'This time next year I will have...'*. It was required that the talk should include five future actions. For instance, one student interviewed the famous heart surgeon Sir Magdy Yacoub. The student playing the role of Sir Magdy Yacoub said, *'This time next year I will have helped more children who suffer from heart diseases. I will have performed more surgical operations to help them recover and lead a normal life. I will have laid the foundation of a new heart surgery hospital to help more patients in Egypt. I will have initiated more awareness campaigns about the dangers of smoking, junk food and overeating. I will have encouraged more people to adopt a healthy life style, exercise more and remain physically fit.'*
3. In session six, students worked in pairs to design, administer and report the findings of a questionnaire using question tags. Pairs were purposefully selected so that they did not know each other very well. Each student in the pair was requested to write ten question tags about his/her partner using varied tenses and affirmative as well as negative sentences. Then, students exchanged roles as they asked and answered each question tag to check the accuracy of the information written by their partners. After that, representatives from five or six pairs were randomly selected to report their findings about their partners to the rest of the class. Examples of the questionnaire items written by one of the students were, *"You have a brother and a sister, don't you? You would like to major in mechatronics, wouldn't you? You didn't study well yesterday, did you? You have recently travelled to the UK, haven't you? You can't swim well, can you? You have been learning German for four years now, haven't you? You hadn't had your breakfast before you came to the university, had you? You will have learned Java programming in two years' time, won't you? You aren't fond of music, are you? You weren't playing football at 5 p.m. yesterday, were you?"*
4. In session seven, students played a guessing game using relative clauses. They were divided into two competing teams. Each team took turns choosing a person, a place, a time or an object to give clues about. Clues should start with, *"This a person who..."*, *"This is place where..."*, *"This is the time when..."* or *"This is*

something that/which...". Each team was required to give three clues for the chosen person, place, time or object. If the other team was able to guess the answer after just one clue, they scored three points. If they needed two clues to come up with the correct answer, they scored two points. After three clues, they only scored one point. If they were unable to guess the correct answer after three clues, they scored a zero. Students played this game until one of the two teams reached twelve points and won the game.

5. In session eight, students worked in groups of four using cardboard paper to design a poster with five scientific facts using the zero conditional and posted the designed posters on the classroom wall. Then, representatives from each group gave an oral presentation of the posters to the rest of the class. Examples of the five scientific facts in one of the students' posters were "*If water boils, it evaporates.*", "*If water freezes, it turns into ice.*", "*If metal is heated, it expands*", "*If you eat too much carbohydrates, you gain weight.*" and "*If you take in too much caffeine, your heart pulses increase and you become too much alert.*"
6. In session nine, students did a ten- minute research race to practise using the passive voice in an authentic speaking task. They were asked to work in pairs using their smartphones to identify inventors who masterminded '*the telephone*', '*the fridge*', '*the light bulb*', '*the TV*', '*the cooker*', '*the internet*', '*the computer*', '*the mobile phone*' and '*the electric heater*'. For every inventor they found, they had to write a complete sentence in the passive voice. When the race ten minutes came to an end, representatives from each pair were requested to raise hands and name the inventor of each of the highlighted modern inventions using the passive voice. The teacher awarded each pair one point for identifying the correct inventor and one point for writing a grammatically well-formed passive voice sentence. The pair who had the most points won the game. Examples of the students' correct answers in this research race included "*The telephone was invented by Alexander Graham Bell.*", "*The telescope was invented by Galileo.*", "*The fridge was invented by Fred F. wolf.*" and "*The light bulb was invented by Thomas Edison.*"
7. Also, in session nine, students worked in groups of four using the passive voice, the given ten pictures as well as guiding

words to write a local newspaper report describing a crime scene. Students were given fifteen minutes to do this task. Then, representatives from each group came in front of the class, sat in the author's chair and read out loud the written news reports. The winning group was the one who used all the given pictures to accurately describe the crime scene using well-formed passive voice sentences. The news report of the winning group was as follows:

Yesterday, a burglar broke into Mr. Richardson's house and attacked the maid. Loud screams and calls for help were heard in the quiet neighbourhood. When the police came in, he found that the money and jewelry were stolen. The window glass was broken. Dirty footprints were left everywhere. The maid was seriously injured and stabbed in her back with a knife. Clothes were scattered everywhere. Chairs and tables were turned upside down. Two big vases were smashed. The family members' hands and legs were tied using ropes. A gun was thrown on the floor and the house front door was left open.

8. In session ten, students worked in groups of four to report the content of a business e-mail using indirect speech. They imagined that a member of each group was Mr. John Smith, the CEO of a car manufacturing company and he was holding a meeting with his subordinates to discuss the company new marketing plan. In the meeting, Mr. John Smith informed his subordinates about the business e-mail he had received lately from the company manager, Mr. David Adam, and reported the e-mail content using indirect speech. As the students did this reporting task, the teacher rotated among the groups, listened to the reporter's indirect speech, asked members of each group to listen attentively and correct any indirect speech mistakes made by the student who played the role of Mr. John Smith. The business email reported in this session was as follows:

Dear Mr. John Smith,

I hope this email finds you well. As you already know, we will launch a new marketing plan soon to increase our profits. Therefore, we need to find innovative ideas to attract potential customers. How much time do you think we need to design and implement this ambitious plan? Are your marketing employees ready to work overtime to finalize this plan as soon as possible? Do they have any creative ideas to share and discuss in the Board of Directors' upcoming meeting? Kindly ask your employees to hold several brainstorming sessions for that purpose. Please do not waste time discussing minute details before you come up with the big picture. The bottom line is that we need to dominate the market through this marketing plan.

**Yours faithfully,
David Adam**

III. After class time

- a. Students were asked to log into the Moodle and do further grammar achievement activities that were specified by the teacher in the uploaded PDF copy of the previously highlighted grammar reference titled "*English Grammar in Use*" for all the grammar sub-skills except for partitives. As indicated earlier in table (10), these activities were quite diverse and included (i) reading the highlighted situations and completing given sentences using the present perfect progressive and the past perfect tenses, (ii) completing given sentences using comparative and superlative adjectives, (iii) putting in correct quantifiers in given sentences, (iv) reading given sentences & completing them using suitable question tags, (v) joining pairs of sentences using 'who', 'that' or 'which', (vi) completing given sentences using either 'who', 'whom', 'whose' or 'where', (vii) using given information and words between brackets to write sentences beginning with 'if', (viii) changing given sentences from the active to the passive voice and (ix) reading given imaginary mini-dialogues between the students and their friends and reporting the speech to another friend.
- b. After doing these grammar achievement activities, students were requested to self-check their answers using the answer key at the end of the book.
- c. To enhance the students' grammatical achievement of partitives, students answered online MCQs that were uploaded by the teacher, and the answer key to these MCQs was, also, uploaded on the Moodle after two hours to enable the students to revise their answers and learn from their mistakes.
- d. To foster the students' grammatical competence, they used the previously shown self-evaluation form to assess their

performance in the authentic speaking and writing tasks done during class time.

- e. After that, students were encouraged to discuss their self-evaluation in individual conferences with their instructor. They were, also, allowed to discuss their self-assessment results during the instructor's announced office hours as well as at the beginning of the next session if necessary.

Instructional aids

This program made use of the following aids:

1. The YouTube instructional videos, the PowerPoint presentations, the BBC 6-minute grammar podcasts and the soft PDF copy of relevant units in the grammar reference book titled "*English Grammar in Use*" that were uploaded on the Moodle and studied by the students before class time;
2. The online 15-item quizzes relevant to the specified grammatical sub-skills that were uploaded on the Moodle and answered by the students before class time;
3. The songs listened to by the students as a warm-up activity at the beginning of each session;
4. The animated conversations and the short clips extracted from movies, cartoons as well as from TV shows and series that were watched by the students during the sessions to identify examples where the specified grammar sub-skills were accurately applied;
5. The images used during the in-class grammatical competence tasks including the images used (i) while writing a local newspaper report describing a crime scene using the passive voice, (ii) while asking and answering questions about what people have been doing and (iii) while doing a role play to describe famous Egyptian people and places to a British friend using relative clauses;
6. The cue cards used during the in-class grammatical competence tasks such as those used to (i) write and orally present eight actions that the students anticipated would be completed by the year 2030 using the future perfect tense, (ii) check the accuracy of the given information using question tags, (iii) describe given times and places using relative clauses and to (iv) form first and third conditionals according to the given situations;

7. The grammar achievement exercises answered by the students during and after each session;
8. The grammatical competence authentic speaking and writing activities practised during the program sessions;
9. The two short videos reported by the students using indirect speech during the tenth session;
10. The grammatical achievement and competence formative assessment tasks done by the students at the end of each session;
11. The data show that displayed the pictures, videos and varied activities during class time; and
12. The self-evaluation form used by the students after each session to assess their performance in the grammatical competence tasks carried out during face-to-face instruction.

Assessment

Formative assessment took place as follows during the program implementation:

- I. *To formatively assess of the participants' grammatical achievement*, they did varied activities. These were (a) answering MCQs using correct forms of the three specified tenses, accurate quantifiers and partitives as well as right passive voice forms, (b) re-writing sentences using correct comparative and superlative adjectives and the expressions given between brackets, (c) doing a jigsaw activity to match statements halves using correct question tags, relative clauses, if-conditionals and (d) reporting the sentences said by a young woman to her best friend using indirect speech.
- II. *To formatively evaluate the students' grammatical competence*, they did diverse authentic speaking and writing tasks at the end of each session. These tasks can be explained in the following table.

Table (11): Formative assessment tasks evaluating the students' grammatical competence

Grammar Sub-skill	Grammatical Competence Formative Assessment Task
1. Present Perfect Progressive Tense	Using given guiding pictures to write and orally present a 5-sentence paragraph titled ' <i>Started But Not Finished Yet</i> '
2. Past Perfect Tense	Working in pairs to ask and answer questions using question cards and the past perfect tense
3. Future Perfect Tense	Using smartphones to record a 2 minute video of the students while talking about their future plans using the expression 'In five years' time I will have...' and then exchanging the recorded videos among pairs of the students

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	for peer assessment
4. Comparative & Superlative Adjectives	Using comparative and superlative adjectives to compare given five sets of pictures displaying mobile phones, buildings, people, crocodiles and food varieties in terms of their price, height, age, weight and taste respectively
5. Quantifiers & Partitives	Using smart phones to play the role of chefs and record a 3-minute video for a famous cooking TV program on how to bake a tuna pizza using correct quantifiers and partitives for the words 'flour', 'oil', 'milk', 'salt', 'mushroom', 'tuna' and 'sauce'
6. Tag Questions	Working in pairs to write, ask and answer questions about classmates using question tags
7. Relative Clauses	Writing and telling stories about a happy, scary, sad or an embarrassing experience using relative clauses and the guiding phrases 'a person who ...', 'a place where ...', 'a thing which ...' and 'a time when ...'
8. If-Conditionals	Using the expressions 'if I were you, If I were in your shoes, If I were in your place, I would/ wouldn't ... ' to do a role play of a father who gave advice to his daughter who missed several classes due to her sudden illness and who wanted to catch up what she had missed
9. Passive Voice	Doing a media briefing role play where police officers answered media correspondents' questions about a murder scene that they had examined
10. Reported Speech	Doing a role play where the general manager of a famous hotel held a meeting with the customer service manager to report the details of a complaint letter received lately from a client who had spent a four-day holiday with his family in the hotel.

As indicated in table (11), the above authentic writing and speaking tasks were used to assess the participants' competent use of the specified grammar sub-skills in communicative contexts. The tasks varied to include writing paragraphs and stories, role playing, recording videos as well as comparing given sets of pictures.

At the end of the treatment, summative assessment took place when the grammatical achievement and competence posttests were administered on the study group students. This summative assessment measured the effect of the implemented flipped learning program on promoting the study group's overall grammatical achievement and competence. It, also, assessed the impact of the program on fostering the study group's achievement and competence in each of the specified grammar sub-skills.

Statistical analysis

After administering the grammatical achievement and competence pre-posttests on the study group, the researcher used paired- samples t-tests to find out whether the study hypotheses were affirmed or refuted.

Furthermore, following Cohen's d formula (highlighted by Lakens in 2013), effect size values were calculated to measure the program effectiveness in promoting the study group's grammatical achievement and competence.

Results

The following were the study findings in relation to its hypotheses:

Hypothesis One: "There is a statistically significant difference between the study group's pre-posttest means in overall grammar achievement in favour of the posttest."

To identify the effect of the program application on the study group's overall grammatical achievement on the pre-.posttest, a paired sample t-test was used. See table (12).

Table (12)

T-test results comparing the study group's pre-/posttest means in overall grammar achievement

Test	N	M	S.D.	D.F.	t value	Significance Level	Effect Size
Pre-test	36	35.83	2.16	35	47.55	0.01 Level	7.93
Posttest	36	65.75	2.56				Large

Table (12) displayed a statistically significant difference at 0.01 level between the study group's pre-/posttest mean scores in overall grammar achievement in favor of the posttest as the calculated t-value was (47.55). Hence, the first hypothesis was confirmed. Furthermore, the effect size value (7.93) revealed the large effect of the implemented program on the study group's overall grammatical achievement in comparison to their achievement on the pre-test.

The upcoming figure shows the study group's significant progress in overall grammatical achievement after the current program implementation as compared to their overall achievement before the intervention:

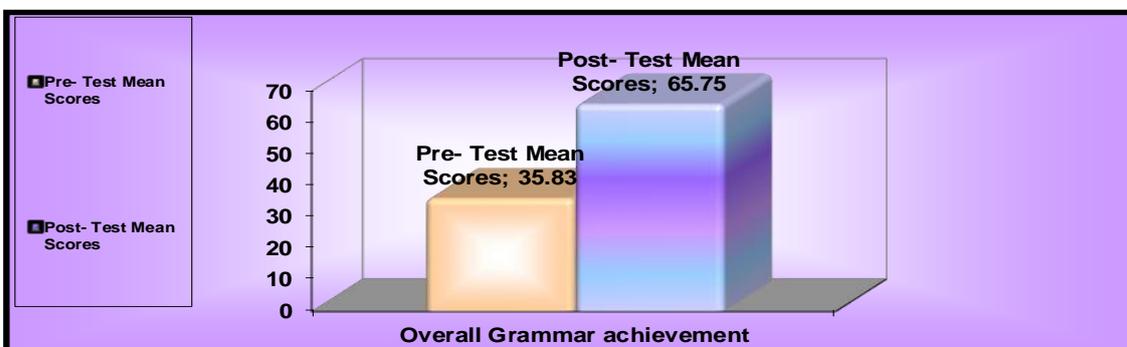


Figure (1)

Comparing the study group's pre-posttest means in overall grammar achievement

Hypothesis Two: "There are statistically significant differences between the study group's pre-posttest means in each grammar sub-skill achievement in favour of the posttest."

To test the second hypothesis validity, paired samples t-tests were employed. The t-test results showed the statistically significant differences between the study group's pre-posttest means in each grammar achievement sub-skill in favour of the posttest. Therefore, the second hypothesis was accepted.

The following table demonstrates this statistical significance at 0.01 level. Moreover, the calculated effect size values revealed that the present program had a large effect on the study group's posttest performance in all the specified grammar sub-skills as compared to their pre-test performance in these sub-skills. It should be highlighted that the largest effect size value (3.22) was for the students' partitives achievement whereas the least effect size value (1.94) was for the students' reported speech achievement. This, in turn, proved that the present flipped learning program led to significant growth in EFL engineering sophomores' grammatical achievement in the stated grammatical sub-skills.

Table (13)

T-tests comparing the study group's pre-/posttest means in each grammar achievement sub-skill

Grammar sub-skill	Test	N	M	S.D.	D.F.	t value	Significance Level	Effect Size
Present Perfect Progressive Tense	Pre-test	36	2.83	0.70	35	12.14	0.01 Level	2.02
	Posttest	36	5.06	0.72				Large
Past Perfect Tense	Pre-test	36	2.92	0.69	35	14.28	0.01 Level	2.38
	Posttest	36	5.03	0.70				Large
Future Perfect Tense	Pre-test	36	2.94	0.73	35	17.53	0.01 Level	2.92
	Posttest	36	5.19	0.62				Large
Comparatives & Superlatives	Pre-test	36	2.89	0.67	35	14.93	0.01 Level	2.49
	Posttest	36	4.94	0.68				Large
Quantifiers	Pre-test	36	3.42	0.87	35	13.98	0.01 Level	2.33
	Posttest	36	6.42	0.94				Large
Partitives	Pre-test	36	3.42	0.87	35	19.28	0.01 Level	3.22
	Posttest	36	6.78	0.83				Large
Tag Questions	Pre-test	36	3.53	0.81	35	14.78	0.01 Level	2.46
	Posttest	36	6.50	0.91				Large
If-Conditionals	Pre-test	36	3.33	0.83	35	18.04	0.01 Level	3.01
	Posttest	36	6.56	0.84				Large
Relative Clauses	Pre-test	36	3.53	0.85	35	13.07	0.01 Level	2.18
	Posttest	36	6.42	1.00				Large
Passive Voice	Pre-test	36	3.61	0.90	35	13.76	0.01 Level	2.29
	Posttest	36	6.64	0.87				Large
Reported Speech	Pre-test	36	3.42	0.91	35	11.61	0.01 Level	1.94
	Posttest	36	6.22	1.17				Large

Hypothesis Three: "There is a statistically significant difference between the study group's pre-posttest means in overall grammatical competence in favour of the post- test."

Table (14)
T-test results comparing the study group's pre-/ posttest means in overall grammatical competence

Test	N	M	S.D.	D.F.	t value	Significance Level	Effect Size
Pre-test	36	37.61	2.600	35	46.61	0.01 Level	7.77 Large
Posttest	36	63.64	2.440				

In table (14), the t-test value (46.61) proved the significant differences between the pre-/posttest means of the study group in overall grammatical competence in favour of the posttest. Thus, the third hypothesis was affirmed. Besides, the estimated effect size value of (7.77) showed that the implemented program fostered the study group's overall grammatical competence.

The next figure highlights the tangible development in the study group's overall grammatical competence after the intervention as compared to their overall competence before the treatment.

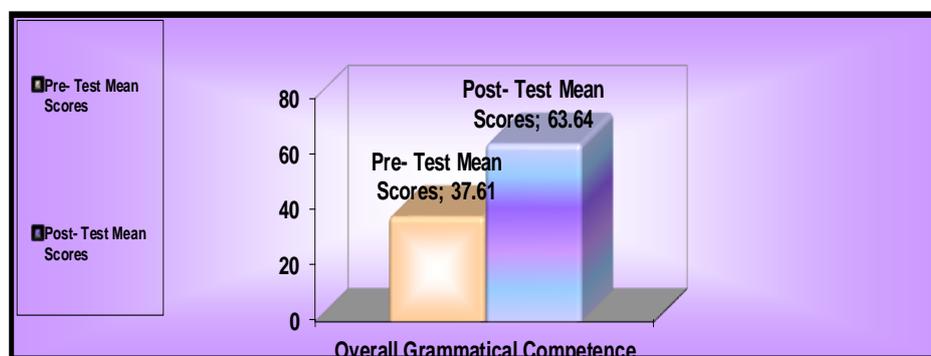


Figure (2)
Figure (2): Comparing the study group's pre- posttest means in overall grammatical competence

Hypothesis Four: "There are statistically significant differences between the study group's pre-posttest means in each grammatical competence sub-skill in favour of the posttest."

Table (15)

T-tests comparing the study group's pre-/posttest means in each grammatical competence sub-skill

Grammar sub-skill	Test	N	M	S.D.	D.F.	t value	Significance Level	Effect Size
Present Perfect Progressive Tense	Pre-test	36	3.14	0.72	35	14.01	0.01 Level	2.34
	Posttest	36	5.11	0.71				Large
Past Perfect Tense	Pre-test	36	3.11	0.76	35	10.94	0.01 Level	1.84
	Posttest	36	5.14	0.70				Large
Future Perfect Tense	Pre-test	36	3.14	0.76	35	13.34	0.01 Level	2.23
	Posttest	36	5.25	0.65				Large
Comparatives & Superlatives	Pre-test	36	3.06	0.75	35	13.96	0.01 Level	2.33
	Posttest	36	5.31	0.67				Large
Quantifiers	Pre-test	36	3.89	0.75	35	15.26	0.01 Level	2.54
	Posttest	36	6.75	0.81				Large
Partitives	Pre-test	36	3.11	0.76	35	11.84	0.01 Level	1.97
	Posttest	36	5.08	0.73				Large
Tag Questions	Pre-test	36	3.94	0.72	35	16.10	0.01 Level	2.68
	Posttest	36	6.69	0.89				Large
If-Conditionals	Pre-test	36	3.56	0.65	35	17.00	0.01 Level	2.83
	Posttest	36	6.39	0.77				Large
Relative Clauses	Pre-test	36	3.11	0.75	35	10.41	0.01 Level	1.74
	Posttest	36	4.97	0.65				Large
Passive Voice	Pre-test	36	3.83	0.70	35	18.56	0.01 Level	3.09
	Posttest	36	6.50	0.69				Large
Reported Speech	Pre-test	36	3.69	0.71	35	16.38	0.01 Level	2.73
	Posttest	36	6.47	0.77				Large

As displayed in table (15), the t-test values confirmed the statistically significant differences between the study group's pre-/posttest means in each grammatical competence sub-skill in favour of the posttest. Thus, the fourth hypothesis was affirmed. Additionally, the largest effect size value (3.09) was for the competent use of passive voice in authentic situations while the least effect size value (1.74) was for the competent use of relative clauses to convey meaning.

To summarize, the study four hypotheses were confirmed. The study group students substantially developed their overall grammatical achievement and competence as well as their achievement and competent use of each of the specified grammar sub-skills after the intervention as compared to their performance before the treatment, thus ascertaining the effectiveness of the present flipped learning program.

Discussion

The posttests results showed that the implemented flipped learning program promoted the study group's overall grammatical achievement and competence. Additionally, these posttest results revealed the participants' significant growth in each grammatical achievement and competence sub-skill. Thus, the current study results are consistent with

the study findings of Warden (2016), Bezzazi (2019), Al-Naabi (2020), Bulut and Kocoglu (2020), Nathawet (2020), Saidah (2020), Philippines and Tan (2020), Allahveysi and Aliakbari (2021), Lubis and Rahmawati (2021), Amini, Roohani and Jafarpour (2022), Dincer and Polat (2022) and Tafti and Tabatabaee-Yazdi (2023) highlighting that flipped learning fostered grammar acquisition among EFL learners of different nationalities and age groups. Additionally, the present study findings go in line with the study results of Isti'anah (2017) and Al-Bataineh, Banikalef and Albashtawi (2019) revealing that Moodle use in blended learning settings fostered EFL university students' grammar acquisition. Moreover, the current study results conform with the findings of Syafryadin (2021) proving that visual illustrations including images and videos enhanced EFL undergraduates' grammar achievement.

During the intervention, several factors have led to the study group's remarkable gains in **overall grammatical achievement and competence as well as their achievement and competence in each of the specified grammar sub-skills**. Among these factors were the varied resources accessed on the Moodle and studied before class time. These resources included short instructional videos, PowerPoint presentations, 6-minute grammar podcasts and the PDF soft copy of the specified units in the grammar reference titled "*English Grammar in Use*". All these resources provided the students with simple, clear and precise explanation of grammatical rules as well as several examples highlighting the application of these rules. In fact, examining these resources before class time prepared the students to participate effectively in class activities during the program sessions. Besides, the online quizzes answered by the students one day before class time motivated them to seriously review the uploaded materials and enabled them to identify how far they understood each grammatical rule before they came to class. Additionally, the self-study nature of pre-class activities fostered the students' independence and triggered their sense of responsibility for their own learning.

During class time, the diverse activities practised by the students fostered their significant growth in **overall grammatical achievement and competence as well as their achievement and competence in each of the specified grammar sub-skills**. To begin with, the short songs listened to during the warm-up stage added the fun factor to the grammar session, aroused the students' interest and lowered their anxiety level, thus enabling them to practise grammar activities in a relaxed classroom atmosphere. Besides, engaging the students in deep group discussions to clarify any misunderstanding in the specified grammatical rules helped

them share their ideas and promoted their interdependence. Actually, this was a time when peer scaffolding took place as the more knowledgeable helped the less knowledgeable to reach common understanding of confusing grammatical rules or patterns. Also, watching the animated conversations in addition to examining the short video clips extracted from movies, cartoons as well as from TV shows and series helped the participants identify examples of how the specified grammar sub-skills were applied in authentic communicative contexts.

Extracting examples of how the specified grammatical patterns were used whether in songs, short clips or animated conversations raised the students' consciousness of these patterns and fostered their internalization of these rules. Furthermore, the wide-ranging collaborative and competitive activities practised during class time promoted the students' knowledge and competent use of the specified grammar sub-skills. Moreover, the teacher's conscious guidance that was offered only when necessary encouraged the students' self-reliance as well as their active participation in classroom activities. Additionally, the formative assessment tasks done at the end of each session helped the students monitor their gradual progress in each sub-skill as well as identify their strengths and weaknesses.

After each session, the exercises answered by the students promoted their overall grammatical achievement as well as their achievement in each grammar sub-skill. Furthermore, the fact that the students self-checked their answers to these exercises using the answer key uploaded on the Moodle enhanced their autonomous learning. Moreover, as the students filled in the self-evaluation form and discussed its results with the teacher after class time whether in individual conferences, during office hours or during the next sessions, this practice enabled them to reflect upon their grammatical competence level in each of the specified sub-skills and set priorities for future improvement.

Overall, it is worth noting that the conscious use of technology appealed to engineering students and fostered their involvement whether before, during or after class time. Also, the fact that the activities and materials were quite diverse helped addressing the students' varied learning styles and fostered their engagement throughout the intervention.

To elaborate, as far as the study group's **overall grammar achievement as well as their grammar sub-skills achievement** are concerned, varied activities were practised during each session including (a) correcting the underlined grammatical errors in given sentences covering the specified three tenses, comparatives and superlatives,

quantifiers, partitives, question tags, relative clauses, if-conditionals and the passive voice, (b) filling in the gaps in given sentences using correct verb tenses, quantifiers, partitives and question tags (c) joining given pairs of sentences using the past perfect tense and the time conjunctions between brackets, (d) rewriting given sentences in the future perfect tense using the highlighted time expressions between brackets, (e) completing given sentences using either comparative or superlative forms of the adjectives between brackets, (f) combining given pairs of sentences using relative clauses and if-conditionals, (g) re-writing active voice sentences in the passive voice using the given phrases between parentheses and (h) changing given direct speech sentences into indirect speech.

It is worth highlighting that the formative assessment tasks done at the end of each session had a positive influence on fostering the students' grammatical achievement. These tasks varied to include (a) answering MCQs using correct forms of three specified tenses, accurate quantifiers and partitives as well as right passive voice forms, (b) re-writing sentences using correct comparative and superlative adjectives and the expressions given between brackets, (c) doing a jigsaw activity to match statements halves using correct question tags, relative clauses, if-conditionals and (d) reporting the sentences said by a young woman to her best friend using indirect speech. Additionally, the after class activities practised by the students enhanced their achievement of the specified grammar sub-skills, and they varied to comprise (i) reading the highlighted situations and completing given sentences using the present perfect progressive and the past perfect tenses, (ii) completing given sentences using comparative and superlative adjectives, (iii) putting in correct quantifiers in given sentences, (iv) reading given sentences & completing them using suitable question tags, (v) joining pairs of sentences using 'who', 'that' or 'which', (vi) completing given sentences using either 'who', 'whom', 'whose' or 'where', (vii) using given information and words between brackets to write sentences beginning with 'if', (viii) changing given sentences from the active to the passive voice and (ix) reading given imaginary mini-dialogues between the students and their friends and reporting the speech to another friend.

To foster the students' overall grammatical competence and grammatical competence sub-skills, in class-activities were diverse and authentic in a way that grabbed the students' attention, provoked their thought and enhanced their participation. Also, the real-life assessment tasks done at the end of each session helped the students gain thoughtful insights about their progress, learning difficulties and possible ways to

overcome these difficulties in the future. *These grammatical competence activities and tasks developing each sub-skill can be explained as follows:*

To develop the students' competent use of the present perfect progressive tense, during class time they wrote, conducted and orally reported the findings of a ten-item survey among classmates beginning with *'How long have you been...?'* Additionally, they used given picture cards to ask and answer questions about what people have been doing in the these pictures. For formatively assessing this sub-skill, students used given guiding pictures to write and orally present a 5-sentence paragraph titled *'Started But Not Finished Yet'*.

To promote the students' efficient use of the past perfect tense in communicative situations, during class time they wrote short imaginary stories using the past perfect tense about seven activities they did before going on a trip to America last summer. Besides, they worked in pairs to ask and answer questions while describing their daily activities backwards using the past perfect tense. For formatively assessing this sub-skill, students worked in pairs to ask and answer questions using question cards and the past perfect tense.

To foster the students' proficient application of the future perfect tense to convey meaning, during class time they used given cue cards to write and orally present eight actions whose completion was anticipated by the year 2030. Furthermore, they did a role play where a TV presenter interviewed a famous celebrity to talk about five future actions to be completed this time next year. For formatively assessing this sub-skill, students used their smartphones to record a 2 minute video of themselves while talking about their future plans using the expression *"In five years' time I will have..."*, and then they exchanged the recorded videos with their classmates to get peer assessment and feedback.

To enhance the students' competent use of comparative and superlative adjectives, during class time they did a decision-making role play where a man and his wife went shopping in a hyper market and decided to buy some electrical appliances after comparing between varied brands in terms of their sizes, prices, quality, electricity-saving ability, warranty periods, maintenance and after-sale customer service. Furthermore, they wrote, conducted and orally reported the results of a ten-question survey using comparative and superlative adjectives to ask

about their classmates' hobbies, interests, preferred food, TV shows, courses, friends and sports. To formatively assess this sub-skill, students used comparative and superlative adjectives to compare given five sets of pictures displaying mobile phones, buildings, people, crocodiles and food varieties in terms of their price, height, age, weight and taste respectively.

To promote the students' efficient use of quantifiers and partitives in authentic contexts, during class time they used them to do a role play of a mother, a father, a daughter and a son who stood together in the kitchen, looked in the fridge and cupboard to write down a shopping list and discuss the amount of groceries, dairy products, meat, fruit and vegetables they needed to buy. Additionally, they wrote and orally presented a cake recipe using the words '*flour*', '*butter*', '*sugar*', '*eggs*', '*milk*' and '*baking powder*' and adequate partitives. Moreover, they wrote a ten-sentence blog describing Sharm Elsheikh to tourists who wished to visit Egypt using the quantifiers '*many*', '*much*', '*little*', '*few*', '*some*', '*any*', '*a little*' and '*a few*' and the given guiding nouns. For formatively assessing the students' competent use of quantifiers and partitives, students used their smart phones to play the role of chefs and recorded a 3-minute video for a famous cooking TV program on how to bake a tuna pizza using correct quantifiers and partitives for the words '*flour*', '*oil*', '*milk*', '*salt*', '*mushroom*', '*tuna*' and '*sauce*'.

To foster the students' proficient application of tag questions to convey meaning, during class time they worked in pairs to check the accuracy of the information given on cue cards using question tags. Furthermore, they designed and administered ten-item questionnaires among classmates using affirmative and negative tag questions in varied tenses. For formatively assessing this sub-skill, students worked in pairs to write, ask and answer questions about classmates using question tags.

To develop the students' competent use of relative clauses, during class time they used given ten newspaper pictures and relative clauses to do a role play of a young man who is describing famous Egyptian people and places to a British friend. Additionally, they used cue cards and relative clauses to describe given times and places. Besides, they played a guessing game where they described people, objects, places and times using relative clauses. For formatively assessing this sub-skill, students wrote and told stories about a happy, scary, sad or an embarrassing experience using relative clauses and the guiding phrases '*a person who...*', '*a place where...*', '*a thing which...*' and '*a time when...*'.

To promote the students' efficient use of if-conditionals in communicative contexts, during class time they used zero-conditionals to design posters with five scientific facts, then posted these posters on the classroom walls and orally presented them. Moreover, they used the situations given on cue cards to form first and third conditionals. Besides, they used the expressions '*If I were you*', '*If I were in your shoes*' and '*If I were in your place*' to do a problem-solving activity where the students played the role of a doctor who was giving medical advice to an overweight patient on how to become physically fit. Afterwards, they wrote and orally responded to eight '*What if questions*' using zero, first, second and third conditionals. To formatively assess this sub-skill, students used the expressions '*if I were you, If I were in your shoes, If I were in your place, I would/ wouldn't ...*' to do a role play of a father who gave advice to his daughter. In this role play, the daughter had missed several classes due to her sudden illness and wanted to catch up what she had missed.

To enhance the students' efficient use of the passive voice in authentic contexts, during class time students used their smartphones and the passive voice to participate in a research race identifying inventors who masterminded varied technological devices. Furthermore, they used given picture cards and guiding words to write a ten-sentence news report describing a crime scene and then orally presented it in class. For formatively assessing this sub-skill, students did a media briefing role play where police officers answered media correspondents' questions about a murder scene that they had examined.

To enhance the students' competent use of reported speech, during class time they did a role play where the CEO of a car manufacturing company held a meeting with his subordinates to report the content of a business email sent by the company manager regarding the new marketing plan. Additionally, they reported to classmates the content of two short YouTube videos titled '*About My Mother*' and '*My favourite Hobby*'. To formatively assess this sub-skill, students did a role play where the general manager of a famous hotel held a meeting with the customer service manager to report the details of a complaint letter received lately from a client who had spent a four-day holiday with his family in the hotel.

It is worth noting that the current study findings cannot be overgeneralized due to two main limitations. First, this study was applied on one intact class of EFL engineering sophomores (N =36) at MSA University. Different results might be obtained if the same study was implemented on a larger sample or in another university. Second, the intervention lasted over a period of two months and a half only. Hence, implementing this study over a whole academic year might yield different findings.

Two main challenges faced the researcher while conducting this study. Firstly, many of the study participants were demotivated to learn EFL grammar due to the earlier traditional teaching practices. As they got involved in learning grammar according to the FLM, their engagement and motivation levels substantially improved. Secondly, several study participants were reluctant to self-study pre-class materials as they were used to teacher-centered approaches. However, as they realized the value of pre-class materials and activities, they became more self-reliant, and they maintained that these materials and activities facilitated their acquisition of EFL grammar.

Conclusions

The following conclusions are made based on the study findings:

1. The current study proved the positive impact of the proposed flipped learning program on enhancing EFL engineering sophomores' grammatical achievement and competence.
2. There is, also, evidence that examining materials uploaded on the LMS before class time provided the students with the needed knowledge to actively engage in the challenging activities done during class time.
3. Answering online grammar quizzes before class time enabled EFL learners to know their strengths, weaknesses and the areas they needed to work more on.
4. Extracting examples of grammatical rules application from songs, movies, cartoons, TV shows and series as well as from animated conversations raised the students' consciousness of these rules and drew their attention to grammar role in authentic communication.
5. Classroom group discussions of confusing grammatical rules helped clear any misunderstanding and enriched EFL students' grammatical knowledge.
6. During class time, involving the students in motivating collaborative and competitive grammar activities fostered their knowledge and competent application of grammatical patterns in communicative settings.

7. Authentic speaking and writing activities provided the students with valuable chances to apply grammatical rules to convey ideas and emotions.
8. Formative assessment tasks done at the end of each session helped the students track their gradual progress in grammatical achievement and competence.
9. Answering varied grammar exercises after class time fostered the students' achievement of the grammatical rules.
10. Self- evaluating the students' performance in authentic speaking and writing tasks helped them develop their abilities to apply grammatical rules in real-life communication.
11. Overall, flipping grammar instruction enhanced EFL students' engagement and provided them with flexible learning plans to acquire grammar whenever and wherever it was convenient to them.
12. Flipping grammar instruction made EFL learners more autonomous and more responsible for their own learning while stressing the teacher's role of a guide and a mentor.

Recommendations

The following recommendations are made to enhance the effectiveness of flipped learning programs among Egyptian EFL undergraduates:

❖ **EFL curriculum designers should:**

1. Carefully select varied audio-visual aids and resources; and
2. Design flipped learning programs in a way that engages EFL learners in thought-provoking activities that address their varied learning styles.

❖ **EFL instructors should:**

1. Be offered enough training in how to carefully select and implement motivating in-class tasks to promote their students' varied language skills; and
2. Offer students help and guidance only when necessary.

❖ **EFL learners should:**

1. Receive sufficient training and guidance in how to use the LMS to access and download flipped learning materials;
2. Practise diverse appealing and interesting activities to enhance their grammatical knowledge and proficiency;

3. Assume more responsibilities for their own learning whether before, during or after class time; and
4. Be encouraged to reflect upon their performance in authentic communicative tasks to develop their grammatical accuracy.

Suggested studies

These research areas are worth exploring:

1. The effect of flipped learning on fostering Egyptian EFL learners' reading, writing, speaking and listening skills in varied educational settings;
2. The impact of combining flipped and gamified learning on promoting EFL learners' phrasal verbs acquisition;
3. The effectiveness of flipping vocabulary instruction on its acquisition among EFL undergraduates and secondary stage students; and
4. Comparing the effectiveness of flipped and project-based learning in enhancing EFL university students' grammatical competence.

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