

Examining the Impact of Flipped Classroom on English Language Grammar Achievement by Iranian EFL High School Students: A Quasi-Experimental Study

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Article Info	Abstract
<p>Article type: Research Article</p> <p>Article history: Received November 20, 2024 Received in revised form October 24, 2025 Accepted December 16, 2025 Published online December 19, 2025</p> <p>Keywords: Flipped classroom method, EFL learners, Grammar, Language learning, language teaching.</p>	<p>This study aimed to investigate the effectiveness of the flipped classroom approach in enhancing grammar learning among Iranian EFL high school students. A quasi-experimental design was employed, with 100 participants randomly assigned to either the experimental group, the experimental group, or the control group. The experimental group received instruction using the flipped classroom method, while the control group followed traditional teaching methods. Data collection included pre- and post-tests to measure grammar proficiency, questionnaires to assess student and teacher perceptions, and semi-structured interviews to gather in-depth insights. The intervention period lasted eight weeks, during which the experimental group engaged in video-based learning outside of class and participated in interactive classroom activities. In contrast, the control group followed a traditional lecture-based approach. Independent-samples t-tests revealed significant differences between the flipped and traditional groups, with the flipped classroom group demonstrating superior grammar learning outcomes. Both students and teachers reported positive attitudes towards the flipped classroom, citing increased motivation, engagement, and opportunities for communication and collaboration. Finally, the implications of these findings were discussed, and suggestions for future research and practice in EFL education were made.</p>

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Introduction

The integration of technology into education has revolutionized teaching and learning, necessitating a paradigm shift in instructional methods (Chen et al., 2017; Bonk & Graham, 2012). This shift requires a new model of teaching and learning that enhances the quality of learning and develops the learning experience and process (Alias, 2010; Bonk & Graham, 2012). The flipped classroom (FC) provides a promising model that aligns with contemporary educational needs by inverting the traditional learning process.

Given the potential of flipped classrooms to promote active learning and student engagement, this teaching approach has gained significant popularity in recent years (Gondal et al., 2024). The FC reverses the traditional learning process, shifting the focus from in-class instruction to out-of-class content consumption (Al-Harbi & Alshumaimeri, 2016). Students engage with instructional materials independently before class, allowing for more interactive and collaborative activities during class time (LaFee, 2013). This approach fosters a dynamic learning environment that encourages active participation and critical thinking (Bulut & Kocoglu, 2020). By blending traditional teacher-centered instruction with online learning, the FC creates a learner-centered context (Bonk & Graham, 2012).

Numerous studies have examined the effects of the FC across various fields (Alias, 2014; Basal, 2015; Bernard, 2015; Bhagat et al., 2016; Chiquito et al., 2020; Clark, 2015; Galway et al., 2014; Irianti et al., 2024; Lo et al., 2024). Notably, research on the flipped classroom's impact on EFL learners is substantial (e.g., Afzali & Izadpanah, 2021; Al-Harbi & Alshumaimeri, 2016; Al-Naabi, 2020; Bulut & Kocoglu, 2020; Chen Hsieh et al., 2017; Fathi & Rahimi, 2020; Haghighi et al., 2019). However, these studies have primarily focused on different techniques for implementing flipped classrooms and descriptive research outlining the procedures for implementation. Few research studies have been conducted to investigate the issue using experimental or quasi-experimental research design (Alsmari 2020; Boyraz & Ocak 2017; Chen, 2017; Fathi & Rahimi, 2022; Haghighi et al., 2019; Namaziandost & Çakmak 2020), and these were mostly conducted at the higher education level. Moreover, few studies have investigated attitudes toward the flipped classroom, with a particular dearth of research on teachers' perspectives (Jiang et al., 2020; Long et al., 2017).

Additionally, few studies have focused on grammar (Afzali & Izadpanah, 2021; Al-Harbi & Alshumaimeri, 2016; Al-Naabi, 2020). Grammar is a fundamental component of language, crucial for foreign language acquisition (Li, Wang, Wang, & Jia, 2017). Many language learners struggle with grammar, often perceiving it as more challenging than other language skills. Traditional grammar instruction, primarily teacher-centered and activity-based, has not effectively addressed these challenges. Furthermore, while there is growing research on the flipped classroom, studies specifically targeting secondary students are scarce (e.g., Al-Harbi & Alshumaimeri, 2016; Bergmann & Sams, 2012; Bulut & Kocoglu, 2020).

Despite a growing body of research on the FC in EFL contexts, a notable gap exists in the literature. Few studies have compared the model's impact across different educational levels and the role of teacher perceptions remains largely unexplored. The present study aims to address these limitations. The present study aims to investigate the impact of a FC model on English grammar acquisition. Recognizing grammar as a fundamental linguistic component often marginalized in language instruction, this research seeks to determine the efficacy of this innovative pedagogical approach in enhancing grammar proficiency. The study focuses on Iranian learners of English as a Foreign Language (EFL), given the distinctive challenges they encounter compared to English as a Second Language (ESL) learners. To expand upon existing research, this study examines the underrepresented population of secondary students and the understudied domain of grammar within the FC context. By doing so, it seeks to identify potential differential effects of the model across different educational levels and subject areas. Finally, the study will incorporate the perspectives of both learners and teachers to gain a comprehensive understanding of the flipped classroom's effectiveness in teaching English grammar. To this end the following research questions were posed:

- Is there any significant difference between the grammar achievement of the secondary school students who were taught through FC (flipped group) and the students who were taught through the traditional teaching method (control group)?
- What are the perceptions and attitudes towards the implementation of FC in learning English?

Literature review

Flipped Classroom model and Grammar

Elaborate systematically the integration of technology into education has catalyzed a paradigm shift in instructional methodologies, with the FC emerging as a prominent and influential approach (Bulut & Kocoglu, 2020). In response to the increasing demand for effective English language teaching, educators have sought innovative methods to enhance language skills and foster autonomous learning (Adams et al., 2017; Chuang et al., 2018; Hao, 2016; Wu et al., 2017). The flipped classroom, with its potential to transform traditional teaching practices, has garnered significant attention in the field (Network, 2014b).

The FC model has gained particular traction in English as a Foreign Language (EFL) context. Several studies have investigated its impact on EFL learners. Boyraz and Ocak (2017) conducted a quasi-experimental study to examine the effects of flipped instruction on general English proficiency and student attitudes in a Turkish EFL context. Comparing a FC group to a traditionally taught control group, the researchers found that students in the FC demonstrated higher levels of English proficiency and exhibited more positive attitudes towards the learning experience.

Chen Hsieh et al. (2017) focused on the efficacy of the FC in teaching English idioms to Taiwanese university students. Employing a mixed-methods design, the study compared a FC

group to a traditionally taught group. Results indicated that the FC significantly enhanced students' motivation, engagement, and idiomatic knowledge. Haghighi et al. (2019) investigated the impact of the FC on EFL learners' pragmatic competence in Iran. A quasi-experimental study comparing flipped and traditional instruction groups revealed that students in the FC exhibited greater engagement with course content and more positive attitudes towards the learning experience.

Zou (2020) conducted a study on a gamified flipped English as a foreign language classroom with primary students in Hong Kong. A year-long study involving 277 students and 8 teachers was conducted. Findings indicated that both students and teachers reported increased motivation, engagement, and learning skills in the gamified FC environment. Alsmari (2020) examined the effectiveness of the FC on Saudi EFL undergraduates' pragmatic competence. A quasi-experimental study comparing flipped and traditional teaching groups revealed that students in the FC demonstrated higher pragmatic competence scores. Namaziandost and Çakmak (2020) investigated the impact of the FC on EFL learners' self-efficacy and gender in Iran. A quasi-experimental study with 58 intermediate learners was conducted. Results indicated significant improvements in self-efficacy for the FC group, with particularly pronounced effects for female students.

Since the emergence of FC, many researchers have investigated its effects on various skills and components of the English language, such as writing, speaking, listening, reading, vocabulary, and oral proficiency (e.g., Afzali & Izadpanah, 2021; Ghuftron & Nurdianingsih, 2021; Karimi & Hamzavi, 2017; Rajabi, Mahmoodi, & Hosseini, 2021; Soltanabadi, Izadpanah, & Namaziandost, 2021; Wang, An, & Wright, 2018; Yesilçinar, 2019; Abedi et al., 2019; Engin, 2014; Fathi & Rahimi, 2020; Ghuftron & Nurdianingsih, 2021; Zou & Xie, 2019; Brown & Abeywickrama, 2010; Tseng, 2008; Xu & Qi, 2017). However, few studies have explored this new approach's impact on grammar. For instance, Pudín (2017) investigated the effects of a flipped learning approach in teaching grammar to ESL students to determine its impact on students' perceptions and outcomes. The findings indicated that most students were encouraged by learning grammar through a flipped classroom. These results also provided practitioners with better insights into students' preferences for this model.

Another study by Bezzazi (2019) examined the effect of flipped learning on EFL learners' grammar. The study aimed to determine which group, flipped or traditional, showed improved English grammar learning. Results indicated that the flipped learning method was more effective than traditional instruction in teaching English grammar, and participants in the flipped group reported satisfaction with the approach. Elsewhere, Bulut and Kocoglu (2020) investigated the effectiveness of the FC in teaching grammar to EFL learners. Two intact groups of students enrolled in an English course at a Turkish vocational school participated. Results demonstrated a significantly higher positive difference in the experimental (flipped) group compared to the control (non-flipped) group. The results align with Al-Naabi's (2020) findings. He explored the impact of the FC on EFL students' grammar and perceptions, arguing that the

approach positively influenced student understanding and attitudes towards learning English grammar.

To assess learners' engagement and motivation in English grammar, Afzali and Izadpanah (2021) studied the effect of the FC on Iranian foreign language learners. The aim was to determine the effect on intermediate and upper-intermediate learners. Using a quasi-experimental design over six weeks, they found a significant difference between pre- and post-test scores in the experimental group but not in the control group. Both intermediate and upper-intermediate students held positive attitudes towards motivation and engagement in this new method. Mandsari and Wahyudin (2021) focused on the impact of the FC model on EFL learners' satisfaction with grammar. Results showed successful implementation of the flipped method, high student satisfaction, and improvements in self-learning and grammar knowledge. While existing studies have concentrated on the grammar component, their number is insufficient compared to research on other skills like writing. Given the importance of grammar in EFL contexts, the present study aims to re-examine the impact of the FC on grammar achievement, investigating its effect on two or three specific grammatical points.

Perceptions towards the FC model are generally positive, characterized by a balance of perceived advantages and disadvantages (Al-Harbi & Alshumaimeri, 2016; Bulut & Kocoglu, 2020; Chen Hsieh et al., 2017; Santikarn & Wichadee, 2018). A preponderance of recent research has adopted a mixed-methods approach to comprehensively examine the model's impact on both student perceptions and academic performance. Karimi and Hamzavi's (2017) investigated the effects of the FC on EFL students' reading comprehension and attitudes. Employing a randomized controlled trial with 60 EFL learners, their findings indicated enhanced reading comprehension and positive student attitudes within the FC group compared to the traditional instruction group. Likewise, Al-Harbi and Alshumaimeri (2016) explored the flipped classroom's influence on grammar performance and attitudes among Saudi EFL secondary students. While their quasi-experimental design revealed no significant difference in grammar scores between experimental and control groups, student feedback consistently indicated positive attitudes toward the FC approach.

This study aims to investigate the impact of the FC on grammar achievement by focusing on two or three specific grammatical points using a quasi-experimental research design. By engaging learners more actively in the learning process, the FC has the potential to improve grammar proficiency. Furthermore, this study aims to contribute to this underrepresented area by examining exploring the perceptions of teachers and learners.

Method

A quasi-experimental design including pre-test and post-test was employed in the current study to measure changes in the dependent variables after intervention. In this kind of research design, the participants are not selected randomly (Ary, Jacobs, Sorensen, & Walker, 2013). Since random selection was impossible for researcher, intact classes were adopted in the present study

and the participants were selected by using a convenience sampling procedure. As a matter of fact, this study adopted a quantitative and qualitative method i.e. a mixed method approach.

Participants

The participants of the study were fifty tenth-grade secondary students in one of the private high schools in Kerman province. Due to the school policy, all of these students were female and they belonged to the two intact classes. In addition, their school majors were Experimental Sciences and Humanities. All participants were selected from intact classes and they were randomly assigned to treatment groups. It means that they were randomly assigned to a control group (n=25) which was taught grammar through the traditional teaching approach and the experimental group or flipped group (n=25) which was taught grammar content through a FC model. During this study, the classes, which were formed as flipped group, should watch lesson input in the form of short tutorial videos at home before each session then spend their class time working on exercises, communicating and giving feedback. In addition, a semi-structured or focus group interview in each context with five members was conducted to answer some questions in detail after the intervention. Students taken apart in the interviews voluntarily and the students who belonged to the flipped group could participate in the interview. Moreover, two teachers taken apart in this study. They had the responsibility of revising the project and participating in the teacher interview.

Instrumentation

Mention To comprehensively investigate the research questions, a variety of data collection instruments were employed. These included a researcher-developed grammar test, instructional videos, student logs, questionnaires, and semi-structured interviews.

Grammar Exam

A pre- and post-test grammar exam assessed students' proficiency in conditionals and passives. Comprising 50 multiple-choice items aligned with British Council standards, the exam was administered via Google Forms. The test's reliability, as measured by Cronbach's Alpha, was .895, indicating strong internal consistency.

Grammar Videos

Six instructional videos covering conditionals and passives were created, incorporating PowerPoint presentations. Distributed via WhatsApp and supplemented by Google Meet for virtual interactions, these videos aimed to deliver grammar instruction independently. While virtual platforms were necessary due to COVID-19 restrictions, face-to-face instruction is ideally suited for the FC model. Video durations ranged from 40 to 75 minutes.

Study Logs

To monitor student engagement and comprehension, study logs were assigned following each video. These logs included grammar-related questions and were submitted via WhatsApp (See Appendix A).

Questionnaires

To assess student attitudes towards the flipped classroom, a 14-item Likert scale questionnaire was administered (Appendix B). Focusing on motivation, effectiveness, engagement, and overall satisfaction, the questionnaire was adapted from Chen Hsieh et al. (2017). The instrument demonstrated high reliability ($\alpha = .958$). Teacher perceptions of the FC were gathered through an open-ended questionnaire (Appendix C).

Semi-Structured Interviews

To gain in-depth insights into students' experiences, semi-structured interviews were conducted with five students from each experimental group. Interview protocols focused on overall perceptions of the FC model (Appendix D).

Data Collection Procedure

The study was conducted at Daneshvaran Secondary School in Keramn. Intact classes were randomly assigned to experimental and control groups at both institutions. A pre-test was administered to all participants to assess initial grammar proficiency.

Experimental group implemented the FC model. Sessions occurred outside regular class hours. Students watched instructional videos and completed study logs before class. Six videos covering conditionals and passives (40-75 minutes each) were created and shared via WhatsApp. Pre-class video screenings were confirmed through class discussions and study log completion. In-class activities focused on interactive exercises and peer feedback. The FC comprised three phases: problem identification, collaborative activities, and preparation for the next video session.

Control group received traditional instruction, with content delivered through PowerPoint presentations during class time. Out-of-class assignments replaced in-class activities used in the flipped model. While materials and content were similar, the instructional approach differed significantly. They completed a post-test, and FC students participated in questionnaires and interviews to gather feedback.

Data analysis

Data analysis was conducted using SPSS version 25. Descriptive statistics were employed to summarize pre- and post-test scores for each group. Paired sample t-tests were used to compare pre- and post-test scores within each group (experimental and control). Independent sample t-tests were conducted to examine differences in post-test scores between experimental and control group. Descriptive statistics were also used to analyze questionnaire data.

The qualitative data from the focus groups and teacher interviews were verbally analyzed and categorized into themes by the researchers. The researchers also analyzed their own notes on the experiences of the students for insights.

Findings

Present The descriptive statistics comparing the pre- and the post-test in the traditional and the flipped groups revealed that the mean score of the post-tests was higher than those of the pre-test (see Table 1). To be more specific, the mean score of the flipped group ($M=30.16$) in the post-test was considerably higher than that of the flipped group in pre-test ($M=22.04$). Likewise, the mean score of the traditional group ($M=24.04$) in post-test was much higher than that of the traditional group in pre-test ($M=20.36$).

Table 1

Descriptive Statistics of the Scores in Experimental Group and Control Group

test	Mean	N	Std. Deviation	Std. Error Mean
Pre.exp.sch	22.0400	25	10.84543	2.16909
Post.exp.sch	30.1600	25	13.57596	2.71519
Pre.ctrl.sch	20.3600	25	6.46710	1.29342
Post.ctrl.sch	24.0400	25	11.46182	2.29236

Note: Pre.exp.sch = pre-test scores of experimental group in school

Post.exp.sch = post-test scores of experimental group in school

Pre.ctrl.sch = pre-test scores of control group in school

Post.ctrl.sch = post-test scores of control group in school

In addition, in order to see whether these differences were significant, the paired-samples t-tests results were used. As Table 2 indicates, in the flipped group, the participants performed significantly better on the post-test ($P < 0.05$) compared to the pre-test. Similarly, the difference between the mean scores of the pre- and post-tests in traditional groups was significant.

Table 2

Paired-samples t-test of Experimental Group and Control Group

test	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pre.exp.sch - Post.exp.sch	8.12000	7.23026	1.44605	11.10450	5.13550	5.615	24	.000
Pre.ctrl.sch - Post.ctrl.sch	3.68000	7.53724	1.50745	6.79122	.56878	2.441	24	.022

These results indicated that both methods of instruction had improvement in the post-test scores and they enhanced the participants' grammar knowledge.

Table 3

Descriptive Statistics of Scores in Experimental and Control Groups

test	group	N	Mean	Std. Deviation	Std. Error Mean
pos.tot	Experimental	25	30.16	13.576	2.715
	Control	25	22.86	10.435	2.225

Note: Post.tot = Post-test's total score

Table 4 shows the results of comparing the basic data about the post-test scores in the flipped group and the traditional group in secondary school context. As can be seen from the Table 4 the mean score of the flipped group ($M=30.16$) was higher than the mean score of the traditional group ($M=24.04$).

We have carried out an independent-samples t-test to compare the mean scores of the flipped group and the traditional group. According to Table 8 results, there was significant difference between the mean scores of the flipped group and the traditional group ($P < 0.05$). To answer research question one, is that students learned the grammar content more efficiently during the FC instruction.

Table 4

Independent-samples t-test of Scores of flipped and Traditional Groups

		Levene's Test for Equality of Variances		t-test for equality of means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean difference	Std. error difference	95% confidence interval of the difference	
									lower	upper
Post.tot	Equal variances assumed	2.468	.123	2.04	45	.047	7.296	3.570	.107	14.486
	Equal variances not assumed			2.07	44.2	.043	7.296	3.510	.223	14.370

Note: Post.tot = Post-test's total score

Table 5 presents descriptive statistics of participants' responses. High mean of the answers show that the participants have positive attitudes toward the items.

Table 5

Descriptive Statistics of Questionnaire

		School			
Items	N	Min	Max	mean	SD
state1	25	2	5	4.00	1.000
state2	25	2	5	3.84	1.106
state3	25	1	5	4.12	1.092
state4	25	1	5	3.92	1.152
state5	25	1	5	3.80	1.258
state6	25	1	5	3.80	1.155
state7	25	1	5	4.00	1.354
state8	25	2	5	4.24	1.052
state9	25	1	5	4.04	1.207

state10	25	1	5	4.08	1.115
state11	25	1	5	3.80	1.258
state12	25	1	5	3.76	1.234
state13	25	1	5	3.84	1.143
state14	25	1	5	4.24	1.091

Table 6 illustrates students' positive attitudes towards the FC instruction, with mean scores of 3.93, 4.10, 3.79, and 4.24 for motivation, effectiveness, satisfaction, and overall satisfaction, respectively.

Table 6

Descriptive Statistics of the Perception of Flipped Learning Experience.

construct	N	School				N of items
		Min.	Max	Mean	SD	
Motivation	25	1.80	5.00	3.9360	.99953	5
Effectiveness	25	1.75	5.00	4.1000	.99739	4
Engagement	25	1.75	5.00	3.7900	1.08657	4
Satisfaction	25	1.00	5.00	4.2400	1.09087	1

The students' attitudes towards the FC method were positive. The FC instruction (1) motivated the students to learn English grammar via this method, (2) improved and enhanced the grammar knowledge of participants, (3) engaged the students in learning activities and tasks and (4) made the participants satisfied with their new learning method. The results have been elaborated in more details in table 7.

Table 7

The results about Perception of Flipped Learning Experience

Question	School				
	Strongly disagree	disagree	neutral	agree	Strongly agree
1	-	8	24	28	40
2	-	16	20	28	36
3	4	4	16	28	48
4	4	4	32	16	44
5	8	4	28	20	40
6	4	8	28	24	36
7	12	-	16	20	52
8	-	8	20	12	60
9	4	8	20	16	52

10	4	4	20	24	48
11	4	16	16	24	40
12	4	16	16	28	36
13	4	8	24	28	36
14	4	4	12	24	56

The first statement directly addressed this, with a majority of school students agreeing that the FC was a more effective teaching method. Subsequent statements explored specific aspects of the FC experience. Statement 2 revealed that 64% of school students found it enjoyable to learn grammar in this manner. Similarly, statements 3 and 8 indicated that a majority (76% and over 50%, respectively) perceived the FC as an effective way to learn and understand lesson content. Furthermore, statements 4 and 5 suggested that the FC fostered student motivation (60% agreed) and active learning. Statement 6 further supported this, with 60% of students preferring the FC over traditional methods.

Statements 11 and 12 delved into student engagement, finding that the majority agreed they participated more actively in FC activities. Likewise, statement 13 showed that 64% of students favored learning content through this approach. Finally, the last statement assessed overall satisfaction, with a majority of students expressing positive sentiment towards learning grammar through FC instruction.

The students' overall perception towards the FC learning experience was explored via semi-structured interview. The interview comments were analyzed for themes. The results showed that the students' experiences could be categorized in two closely related dimensions: (1) the usefulness and difficulties of FC instruction (2) their perception of the outcomes.

Usefulness and difficulties

When students were asked about their experience with this method prior to the project, most described it as unfamiliar. Some had previous exposure but lacked dedicated class time for activities and collaboration. One student commented that, "having exercises after learning contents is the best feature of this method". Most students preferred FC instruction for learning content. Some reported that it was effective because they could watch videos at their convenience. As one student noted, "It's much better than teacher-centered classes". They believed that clear teacher explanations in videos were crucial. If the content is taught incorrectly, learners would struggle. One student noted, "It really depends on the student's age and level. If a learner is at a low level, learning from videos can be challenging." In addition, most students found learning English grammar through the FC beneficial. However, some students expressed concerns about its suitability for subjects like mathematics. Two students preferred traditional teacher-centered instruction. One student explained, "I definitely prefer teacher-centered classes because I've experienced both and realized I learn better with direct teacher interaction". Generally, students reported few difficulties with the process, although internet speed and time conflicts with other courses were mentioned. A key benefit was the opportunity to ask comprehensive questions about the content during virtual class time,

something often limited in traditional classrooms due to time constraints. Students also valued increased interaction with peers and the instructor. However, some students found it challenging to submit study logs on time.

Outcomes

The final theme focused on the outcomes of the flipped classroom. Students overwhelmingly reported positive results. They viewed the flipped instruction as an effective method for learning English grammar and found it increased their engagement. Students felt empowered by their autonomy, with one stating, "I can understand the content independently through the FC approach". Some noted that, "we are lazy students at all but in this method because we have to send the study logs for teacher after each video and answer questions in virtual class, we became active learners". Some students noted that the flipped classroom's structure encouraged active learning. As one student explained, "We're naturally lazy, but this method's requirements for study logs and in-class participation made us more engaged." Another student observed increased engagement in both traditional and flipped classrooms but found the latter more stimulating. All students reported improved listening and speaking skills. They also suggested increasing opportunities for whole-class interaction and in-person classes to enhance the learning experience.

Teachers' notes

Online interviews were conducted with classroom instructors to gather additional insights. Teachers observed classroom interactions in both flipped and traditional groups. They noted significantly higher levels of motivation and engagement among FC students during class activities. The quality of instructional videos was praised for their completeness, visual appeal, and clear narration. Consistent with student feedback, teachers reported having more time to address student questions and facilitate interaction within the FC model. They expressed support for incorporating FC elements into English language teaching, particularly for grammar instruction.

Discussion

This study aimed to assess the impact of the FC method on Iranian EFL students' grammar achievement at the high school level. The analysis revealed that FC students significantly outperformed their traditional counterparts on a post-test. This finding aligns with Bhagat et al. (2016), Ebadi et al. (2017), and Fathi and Karimi (2022), who reported similar advantages for FC learners. Fathi and Karimi (2022) attributed these results to the flipped classroom's structure and homework design.

As the view of conventional teaching practices has transformed with new technologies, this transition extends beyond traditional monomodal and teacher-centered instruction, embracing multiple modes of digital technologies, which has caused drastic changes in education

(Hajizadeh et al. 2023). In traditional classrooms, homework was typically assigned after class, lacking peer and teacher interaction. Consequently, students had limited opportunities for self-evaluation and immediate feedback. Conversely, the FC inverted this process, with video lectures assigned as pre-class activities. This allowed students to learn at their own pace, engage with the material repeatedly, and prepare effectively for class discussions. Increased interaction with peers, the instructor, and the material (Mehring, 2014; Mok, 2014) fostered a more dynamic learning environment. By aligning with Wen's (2008) output-driven/input-enabled model, the FC provided opportunities for immediate feedback and task-based input, ultimately enhancing grammar achievement. However, these findings diverge from Al-Harbi and Alshumaimeri's (2016) study, which found no significant difference in grammar performance among secondary school students using the flipped classroom.

In addressing the second research question, the researcher investigated student and teacher attitudes towards the FC method through questionnaire and semi-structured interview analysis. Findings revealed overwhelmingly positive responses from both groups. The majority of participants expressed a preference for the FC and suggested its implementation in other subjects. Participants reported high levels of motivation, effectiveness, engagement, and overall satisfaction, supporting the use of the FC method for language learning. These findings align with previous research (Afzali & Izadpanah, 2021; Al-Harbi & Alshumaimeri, 2016; Al-Naabi, 2020; Bezzazi, 2019; Bhagat et al., 2016; Bulut & Kocoglu, 2020; Chen Hsieh et al., 2017; Haghighi et al., 2019; Karimi & Hamzavi, 2017; Mandasari & Wahyudin, 2021; Pudín, 2017) demonstrating positive student attitudes towards the FC model for teaching grammar. For example, students in Haghighi et al. (2019) and Al-Harbi and Alshumaimeri (2016) studies reported that FC model engaged them more in the process of learning and they become more active than their role in traditional classes. Most of the participants stated that the FC method had an essential role in improving their communication. They emphasized that it provided more opportunities to interact with others. These results are also in line with both Pudín (2017) and Karimi and Hamzavi (2017) who found that flipped group students were satisfied with this method because it helped them to enhance their communication and allowed them to have interaction with other students and teacher. Additionally, regarding motivation, our findings align with studies like Afzali and Izadpanah (2021), which demonstrated that the FC enhanced grammar learning and motivation among intermediate and upper-intermediate learners. Similarly, Chen Hsieh et al. (2017) found that students' motivation to participate in the learning process, including idiom acquisition, increased positively. Our findings also align with Haghighi et al. (2019), who reported that students felt more motivated to learn English and engage in both pre- and in-class activities within a FC environment. Likewise, teachers reported that FC instruction significantly increased student motivation compared to traditional methods (Chen Hsieh et al., 2017). Students appreciated the flexibility to watch videos at their convenience, which enhanced content retention (Al-Harbi & Alshumaimeri, 2016; Haghighi et al., 2019). While most students found the process manageable, some reported challenges such

as time constraints for completing study logs and internet connectivity issues during video access (Al-Naabi, 2020; Pudín, 2017).

Conclusions

The purpose of this study was to compare the grammar achievement of secondary school students under flipped and non-FC methods, as well as to investigate students' and teachers' attitudes towards the FC method. The findings indicated that the learners taught through the FC method out-performed students who learned grammar through the traditional method. In addition, the qualitative data also revealed positive student and teacher attitudes towards the flipped classroom, attributing its success to increased communication opportunities, learner autonomy, and motivation.

The findings of the current study have a number of important implications. In contrast to the traditionally passive student role, the FC fostered active learning. Their responses in the interview revealed that they worked hard to learn content and they became active and autonomous learners in learning process. Additionally, the results indicated that the FC model is a design to enhance EFL learners' speaking through involving them in the communications and interactions. Another implication that can be drawn from the findings is that the FC model fosters the students' motivation and engagement in process of learning grammar. Likewise, the grammatical knowledge of students enhances and they can use the learned grammars easily while communicating and practicing English. Finally, including the FC method in process of teaching will help the students to take the control of their learning, making them be active learners, improve their communication, and achieve higher level of proficiency. Therefore, in order to find out how the FC method can be used for more successful teaching and learning, the researcher suggests performing more studies.

There are several limitations to this study that warrant acknowledgement and consideration for future research. Recruiting 50 non-language students with a comparable language proficiency level proved challenging. Given that students typically take multiple non-language courses, assembling a suitable sample size required accessing five or six classes and administering placement tests. Unlike previous studies (e.g., Afzali & Izadpanah, 2021; Mandasari & Wahyudin, 2021), which provided greater flexibility in participant selection, this research was constrained by the Iranian educational system. Non-language students in Iran primarily focus on reading comprehension and vocabulary, with limited grammar instruction. Introducing additional grammar content outside of the regular curriculum would have been impractical. To enhance future research, selecting participants from higher education institutions with non-English language majors is recommended.

The second limitation is the number of students in each group, and taking a sample group from the population in this research is another restriction of the work. We were not allowed by the Ministry of Education to collect data from the state schools, and we turned to small private schools for assistance. The main shortcoming of the research was conducting the new method

in the school. Then we could teach them the same content material. Assigning the large number of sample size is recommended for further research.

Selecting the instructional material posed another issue associated with the prior restrictions (grammar and structure). Previous studies selected the grammar type in accordance with the background of students such as Afzali and Izadpanah (2021). Determining grammar based on the level of students required a large sample size to be able to select a significant number of students at a particular level through the proficiency test. Due to the small sample size, we tried to select school students of almost the same level and chose two complex and practical grammars according to their textbooks to teach them these grammars before they were taught by their own professors and teachers. It would be interesting to assess the effect of further research should be carried out to compare the FC and traditional approaches and consider the other factors like age, gender and level of language proficiency. Further research should be concentrated on the length of experiment, adding more activities and consider the other grammatical point to teach.

Bio-data

First Author: collected data, designed, conducted the procedure, and wrote the first draft.

Second Author: read, made necessary revisions, and approved the final manuscript.

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Appendices

Appendix A: Sample of study log

- 1) If I ----- (go) out tonight, I ----- (go) to the cinema.
- 2) If we ----- (not/see) each other tomorrow, we ----- (see) each other next week.
- 3) They ----- (go) to the party if they ----- (be) invited.
- 4) She ----- (stay) in London if she ----- (get) a job.
- 5) If I ----- (have) enough money, I ----- (buy) a new car.
- 6) If you ----- (mix) red and yellow, you ----- (get) orange.
- 7) If you ----- (study) hard, you ----- (be) a good student.
- 8) If it ----- (rain), you ----- (get) wet.
- 9) If she ----- (wear) a blue dress, she ----- (look) perfect.
- 10) If you ----- (freeze) water, it ----- (turn) into ice.
- 11) I won't argue, if she -----.
- 12) If you see them, please ----- (give) him my regards.
- 13) If the phone ----- (ring), don't ----- (wake up) him.
- 14) They ----- (will/must/can) see a doctor if they are ill.
- 15) If it doesn't ----- (rain), we may ----- (go) on a picnic.

Appendix B: Students' Questionnaire

1. A flipped classroom is a better way of learning.
2. I enjoyed the flipped classroom teaching approach more.
3. Flipped classroom is a more effective and efficient way to learn.
4. I feel more motivated in a flipped classroom.
5. I became a more active learner in the flipped classroom.
6. I participated and engaged myself more in learning in the flipped classroom.
7. I thought the time and effort I spent in the flipped classroom was worthwhile.
8. I learned more and better in flipped classroom.
9. I think the flipped classroom-learning guide me towards better understanding of the course topics.
10. I experienced pleasure in the flipped classroom method.
11. I devoted myself more to the class activities in the flipped classroom.
12. I spent more time and effort than usual on my flipped classroom learning activities.
13. Generally, I am happy and satisfied with this flipped classroom learning experience.

Appendix C: Teachers' Questionnaire

1. Do you think a FC method is a better way of teaching than traditional?
2. How do you rate the teaching and controlling the whole classes of researcher?
3. The students feel more motivated in FC method.
4. The students get more active (in doing homework) in FC method rather than traditional method.

5. How do you rate the quality rate quality of the videos? In general all aspects of the videos as whole.
6. Do you think your students learn this grammar content more in FC method?
7. What is your opinion about the sharing the content in WhatsApp platform?
8. What is your opinion about the class time? (error correction, feedback, communication)
9. Regardless from the tests result, do you think the students in FC group improve in field of this grammar content?
10. Finally, what is your idea about applying the FC method in English course in role of EN teacher?

Appendix D: Semi-structured Interview Questions

1. Do you have any experience of FC before this project? If yes, could you tell me about it?
2. What do you think about the FC method for learning English grammar? Would you prefer to have more online instruction or more teacher-centered classes?
3. Have you encountered any difficulties when you did the online tests and learned from online video clipping?
4. Could you tell me do you think that the FC method could help you become an active learner?
5. Could you tell me what learning skills you have developed during the FC method experience?
6. What do you like the most about the FC method?
7. What do you like the least about the FC method?
8. If the FC method will be conducted again, do you have any suggestions to make this method get better outcomes?
9. Do you have any other comments that you would like to give?
10. We often had quizzes in class to test your understanding of the materials at home. Were the quizzes helpful for you to learn the new information?
11. Because of the fc methodology, we are able to do more communicative and collaborative pair and group work in class. Which activity was good in this field? And did the FC method help you to maintain better relationship with your classmate and teacher?
12. Technology was a key ingredient in our project. Which technology do you think was the most conductive to learning English?