The Effect of Flipped Classroom Approach on the Iranian High School EFL Learners' Performance

Ahmad Khanahmadi[1]*, Sahar Nasiri[2]

Abstract

With the improvement of technologies in language learning and teaching, new models and approaches are being proposed to enhance the students' performance. One of the practical models is Flipped Classroom (FC), which has been attracted by many teachers and researchers, especially in the K-12 education system. This study explored the effect of the online FC approach on the improvement of EFL learners' performance in high schools in Iran with a quasi-experimental design. To run the experimental study, through convenience sampling forty-three high school students were divided into an experimental group and a control group and to evaluate the efficacy of the online FC approach. The comparison of the results of experimental and control groups' pre-test and post-test scores by an independent samples t-test revealed that incorporating the online FC approach into EFL educational context remarkably improves the EFL students' learning performance. It is significantly applicable for learning a language, especially during the Covid-19 pandemic which majority of the classes have been running online. Additionally, to manage online FC more efficiently, some suggestions are provided for teachers.

Keywords: EFL Learners; EFL Learning; Flipped Classroom; Learners' Performance

1. Introduction

EFL is a vital course among courses in high school, especially in Iran. The major drawback of the traditional approach is dedicating most of the class time to lectures with less collaboration. The shortcomings of the conventional approach resulted in the development of modern approaches to education, one of which is Flipped Classroom (FC) approach (Tucker, 2012), which has grown in popularity; especially in compulsory education (Chen et al., 2014). In FC,

[1] Department of Foreign Languages, International College, Tehran University of Medical Sciences.
  E-mail: ahmad.khanahmadi@gmail.com
[2] Department of English Language Teaching, West Tehran Branch, Islamic Azad University, Tehran.
  E-mail: sahar.nasiri412@gmail.com

in contrast to the traditional one, learners are presented with recorded video or podcast lectures at home and then take part in activities and exercises in school (Chen et al., 2014). According to Bergmann and Sams (2012), the FC is defined as reversed classroom or instruction (as cited in Wei et al., 2020). Toh et al. (2014) maintained that the efficiency of the FC approach in K-12 remains vague and if all learners take advantage of flipped learning also is still hazy. It is believed that the main feature of the FC is the active learning atmosphere of the classroom (Bishop & Verleger, 2013).

Some studies have revealed that the academic performance of students can be improved via the FC approach (Schultz et al., 2014). However prior studies focused mainly on average performance and learners' prior knowledge was not considered (Wei et al., 2020). Therefore, to address this gap, this study aimed to investigate the effect of the FC approach on improving Iranian high school students' EFL learning performance within the context of an English language classroom. In order to find the impact of the FC approach on Iranian high school students' learning, an experimental study which had a pretest-posttest control group design was carried out.

Albeit several studies have examined the benefits expected from the FC, scant research has explored its effects on EFL classrooms in Iran's high schools. Hence, the following research question will be answered in this study:

RQ1. Does the FC approach have any significant effect on Iranian high school students' performance in EFL classrooms?

2. Review of Literature

Technologies have been integrated into the teaching curriculum and caused improvement in the performance of learners (Ghaemi & Bayati, 2021) and instructors are motivated to use internet and technology in their classrooms (Kaviani, 2022). The FC is used as a technological way for making better learning environments (Namaziandost et al., 2020) and it has been paid more attention by scholars in the past few years. Onyema et al. (2021) believed that FC is a practical model that stimulates learners-centered learning and problem-solving skills. The content is developed and provided to the learners before the class by the teacher, therefore they are responsible for reading, interpreting, and synthesizing new concepts from the materials developed and provided (Onyema et al., 2021). Tucker (2012) maintained that the main concept of the FC is to spin the traditional teaching method. The FC accentuates the use of physical classroom interaction and self-regulated learning by embracing different pedagogies, including learning based on project, inquiry, and problem solving (Cheng et al., 2019; Keengwe et al., 2014). A great number of teachers have used the FC approach, in which their students study the materials which were recorded by the teacher at home and do the assigned homeworks and tasks in school (Jdaitawi, 2019; Kissi et al., 2018; Mohammadi et al., 2019; Pi et al., 2017; Salimi & Karimabadi, 2020; Unal & Unal, 2017; Wei et al., 2020). For instance, Tucker (2012) asserted that the teacher records and prepares materials related to the session and presents them to the students in the learning platform, then the students study the materials at home and the class time is allocated to the problem solving and group activities. He also believed that the classroom becomes a scene for learners to practice high-level concepts and learning difficulties.

The teacher has an opportunity to spend time on various activities rather than teaching the new concepts. By this means, additional time could be allocated to more activities and tasks by teachers. Therefore, the instructor can practice with the learners in an FC classroom one-on-one (Tucker, 2012). Thereby, Wei et al. (2020) maintained that in FCs in comparison to traditional classrooms, instructors have more time to support learners by providing learning feedback individually.

The FC approach has been used in different courses (Bergmann & Sams, 2012; Tucker, 2012), such as physics (Aşıksoy & Özdamlı, 2016; Capone et al., 2017; Sengel, 2014), EFL learning (Namaziandost & Çakmak, 2020), computer science (Maher et al., 2015; Talbert, 2011), and mathematics (Bhagat et al., 2016; Lo & Hew, 2017; Wei et al., 2020). Despite the fact that researchers have utilized the FC approach in different teaching subjects, shifting impacts have been recognized in different circumstances. Prior studies have shown that students' self-confidence and academic achievement progressed by applying the FC (Lee, 2018). On the other hand, some studies have indicated no significant differences between students' attainment in FC classes in comparison with traditional classes (Strayer, 2012). Wei et al. (2020) believed that the FC is still a developing teaching approach, and teachers and parents are concerned about its efficacy. Therefore, the effect of the FC approach should be investigated.

Several studies have been administered to explore the effect of flipped classrooms on students' English language learning in the context of Iran. In a recent study, Namaziandost et al. (2020) used a questionnaire to investigate the advanced EFL learners' beliefs about the flipped classroom model after 10 sessions of FC instruction. Results showed that participants of the study had a positive attitude toward the FC model. Mohammadi et al. (2019) conducted a pre-experimental study to examine the achievement of EFL learners' that were instructed by the FC model. Analyzing the post-test results demonstrated that the experimental group had better performance and their willingness for communication was increased in comparison to the control group. In another study, Hajebi (2020) checked the impact of FC as a supporting plan on the English improvement of EFL learners in super-intensive courses in an institute of English language learning in Bandar Abbas. Analyzing the data demonstrated that flipped approach not only improved students' learning of English but also increased their motivation toward learning.

Fathi and Rahimi (2020) in their study examined the effect of FC on EFL learners' writing complexity, accuracy, and fluency. The results of the study showed that learners' writing has been improved through the FC approach. But there was no great significant effect of FC on students' complexity and accuracy of writing. But in another study, Abedi et al. (2019), mentioned that the experimental group in which the FC approach was used, outperformed the control group regarding the writing skill. Namaziandost et al. (2019) investigated the effect of the FC model on EFL learners' listening performance and similarly, the results determined that the experimental group which was instructed by the FC model outperformed the control group with traditional instructions. Many other studies have examined the impact of the FC approach on different language skills separately too, for example reading (Abaeian & Samadi, 2016; Hashemifardnia et al., 2018; Samiei & Ebadi, 2021; Sin & Siahpoosh, 2020), writing (Abedi et al., 2019; Sahragard et al., 2020; Sarani et al.,

2020), listening (Etemadfar et al., 2020; Namaziandost et al., 2020), and grammar (Afzali & Izadpanah, 2021; Khodabandeh & Tharirian, 2020).

2.1. The Theoretical Framework of the FC Approach

An important factor in designing FC is providing easily accessible technologies which are familiar to students as well (Kim et al., 2014). The learning platform for uploading the prerecorded video and audio lectures by the Iranian teacher are the Shad platform designed by the Ministry of Education of Iran. Students can download or upload files such as learning videos, audio, and tools. Also, they can negotiate about the materials with other learners and the instructor. Students can check the prepared materials and do some related tasks at home online through computers or mobile phones. It is possible for the students to review the former materials every time and without any limitations according to their needs. Teachers can partition each lesson into some sections based on the goal of the course to help students learn the topics easier.

Teachers make several videos for different lessons, sections, or units of each course. Furthermore, they can create quizzes for each segment to check the students' difficulties before the course. In order to solve the students' problems, teachers can have feedback on the platform. Also, learners may give feedback on their classmates works by discussing and sharing their learning reflections on the platform. Instead of giving lectures which is common in traditional classes, teachers try to design and implement problem-solving skills and interactive learning activities in FCs. In this regard, Table 1 shows the FC learning process before, during, and after the class.

Table 1.
The learning procedure of FC.

Before Class	During Class	After Class
• Watching videos, listening to podcasts, and studying materials • Getting familiar with new concepts	• Small group discussion, problem-solving, projects, creating things, analyzing things	• Reviewing key concepts, projects, creating things
• Formative assessment	• Formative assessment	• Formative assessment
• Checking for understanding	• Checking for understanding	• Checking for understanding

Besides, Figure 1 indicates the procedure of the FC learning approach (Wei et al., 2020). The numbers within the circle demonstrate that there are three main phases, and each phase incorporates a few steps. Initially, the teacher explains the learning units of the course and the learning models of FC. Through the learning platform, students are able to download the materials and learn everywhere they are, and negotiate with their peers. The teacher can evaluate students' performance and consequently plan for discussions in the classroom based on students' feedback and learning status such as misunderstandings or recurring errors.

Furthermore, students were classified into small groups to discuss. Emphasizing cooperation and conducting some sessions for answering students' questions help increase students' knowledge.
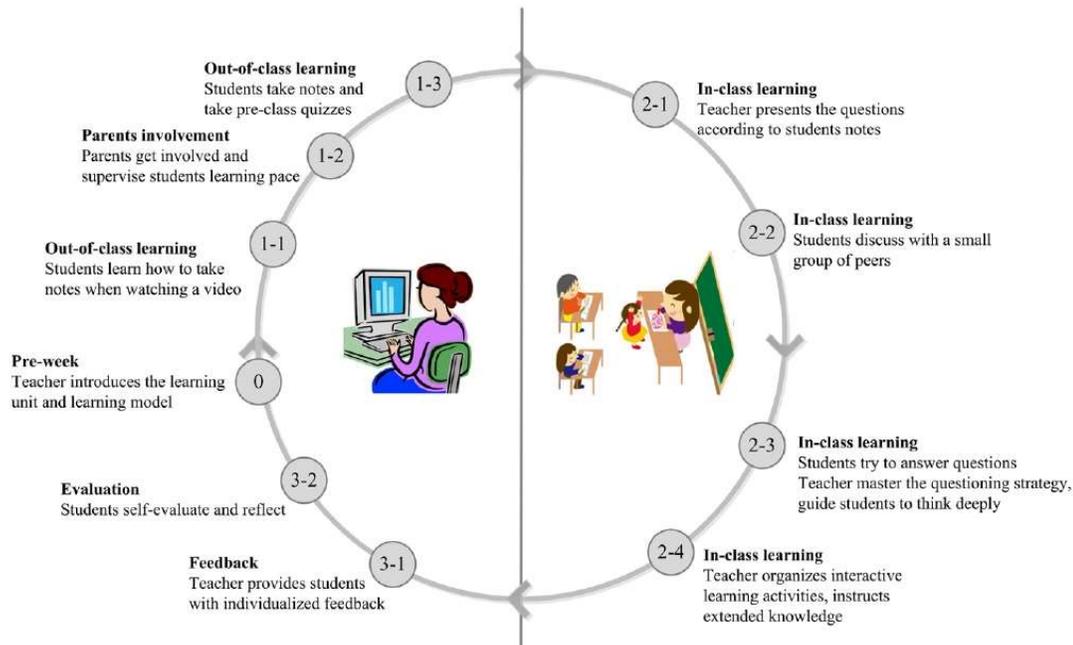

Figure 1. The circulation of the FC approach (Wei et al., 2020).

In the out-of-class learning step, it's possible for students to pause the videos and audio and take notes of them. Students can use these notes in discussing the questions with their classmates during online class sessions. Additionally, by taking notes students make a list of important points and questions besides watching the videos. After watching the video, students were supposed to answer the formative assessment tasks before each lesson. If students perform unsatisfactorily, they can check the videos once more and write their questions for the online class. After doing home activities individually, learners participate in group-learning steps in the class. In class, the teacher asks students about the questions that they come across at home and wants them to work out with their classmates to find an answer. In order to activate learners' deep-thinking ability, the strategy of questioning can be used by the teacher. Here the teacher doesn't give the answer directly, he tries to use the counter-question strategy to guide students to think about the subject and find its answer themselves.

3. Method
In order to answer the research question, a quasi-experimental design – pretest and post-test control group design- was used.

3.1. Participants and Setting
To run the study, two high school classes that one of them having 22 and the other having 21high school students were selected by using convenience sampling as the participants of the

study (N = 43). They were all boys and were 16 or 17 years old. They were in the last year of high school in Tehran and all of them were studying in the field of Mathematics. Since the study had a pretest and post-test control group design, the class with 22 students was selected as the control group and the other one was selected as the experimental group. The groups were intact and not randomly selected.

3.2. Instrumentation

Given that the participants all were high school students; no placement test was given. Since the study was run during the Covid-19 pandemic, and all the school classes should be running online, the Ministry of Education of Iran prepared a learning platform named 'Shad' in which all the classes are scheduled to be run there during this time. Therefore, the main tool for the present study was the mentioned learning platform. Vision 3 (AlaviMoghadam et al., 2020) was the main compulsory coursebook that students of this level ought to study in which half of it must be covered in the first semester. Furthermore, in the experimental group, the instructor recorded different videos or prepared various materials related to each session. Finally, in order to assess the students' performance, two achievement tests prepared by the Ministry of Education were used as the pre-test and the post-test. They were administered as a pre-test to make sure that there was no statistically significant difference between the two groups and at the end of the study as a post-test to make a comparison with their performance on the pre-test to check whether there is any progress or not and if yes to what extent.

3.3. Procedures

The procedures applied for the present study comprise selecting the participants, running the pre-test, applying the treatment, and finally administering the post-test. To examine the efficacy of the FC, a pretest and posttest experimental study was run.

In the first session, before starting teaching materials, a pre-test –written and administered by Educational Quality Assessment and Monitoring Center in September 2020 as a final exam in Iran - was administered to both groups to check their initial English language proficiency. It took 120 minutes and it was scored 40 which was turned on a scale of 20. The participants were similar in their age range, sex, the field of study, teaching materials, and administered tests.

In this study, students of both groups were exposed to instructions related to their coursebook. As mentioned above, due to the Covid-19 pandemic, both control and experimental group classes were run online on the Shad platform. But there was a difference that in the control group the teacher taught online on Shad platform and presented the lessons by lectures while in the experimental group, the teacher utilized filliped classroom approach in which he provided videos, podcasts, texts, and materials related to materials of each session which contained all four skills in different sections of the book and uploaded for the students in the learning platform some days before the online session. Before the online class, students watched the videos, listened to the podcasts, studied the materials, took notes, and did some tasks prepared for them by the teacher as formative assessments to evaluate the comprehension of remembering and understanding levels of Bloom's taxonomy (Figure 2) (Armstrong, 2010).

Questions related to the uploaded materials were raised in the beginning and during the online classes by the students, and the teacher could anticipate where students need the most help. Additionally, learners practiced performing the skills they were expected to learn and the teacher guided the learners with feedback and mini-lectures. In this phase of the FC approach, applying, analyzing, evaluating, and creating levels of the taxonomy of Bloom were met (Figure 2).

After the online class, as figure 1 shows, some tasks including projects, papers, creating things, and reviewing key concepts were assigned to finalize the learning phases and in this phase of the learning process, all levels of Bloom's taxonomy were met (Figure 2).
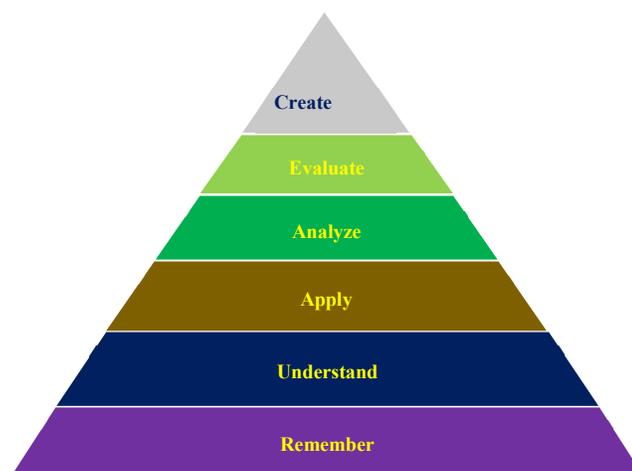

Figure 2. New version of Bloom's Taxonomy (Armstrong, 2010).

Finally, to check the efficacy of the FC approach and to make a comparison with learners' performance on the pre-test and evaluating the progress of each group, a post-test that was written and administered by Educational Quality Assessment and Monitoring Center on January 2021 as a final exam in Iran - was administered to both groups. It took 120 minutes and it was scored from 40 which was turned on a scale of twenty.

3.4. Data Analysis
IBM SPSS statistical software package version 26 was used for analyzing the data. At first, an independent samples t-test was run to check the participants' prior knowledge and after the instruction, another t-test was run to compare the achievement of the groups and to check the effect of the FC approach among Iranian high school EFL classrooms.

4. Results and Discussion
To check the prior knowledge of the participants an independent samples t-test was run to examine whether there is a statistically significant difference between the experimental and control group level of proficiency or not before the treatment. As it is illustrated in Table 2, there was no significant difference t= 0.88, p>0.05 between the experimental group (M=7.55, SD= 0.77) and control group (M=7.38, SD= 0.65). Thus, two groups of participants had similar background knowledge before participating in the experiment.

Table 2.

Descriptive statistics and t-test results for pre-test scores.

Group	N	Mean	SD	P-value	t
Experimental group	22	7.55	.77	.42	.80
Control group	21	7.38	.65		

After administering the pre-tests, the experimental group was instructed by the Flipped approach and the control group was taught in the traditional way during the term. Next, a post-test was conducted to check the effectiveness of flipped classrooms. An independent samples t-test was utilized to compare the performance of students in the experimental and control group. Descriptive statistics and the results of the post-test are presented in Table 3. It was revealed that there was a significant difference t= 5.68, p<0.05 between groups in post-test. More specifically, it can be said that, there was a significant difference between the experimental group (M = 16.59, SD = 1.43) and the control group (M = 14.33, SD = 1.14) in that experimental group outperformed the control group.

Table 3.

Descriptive statistics and t-test results for post-test scores.

Group	N	Mean	SD	P-value	t
Experimental group	22	16.59	1.43	.00	5.68
Control group	21	14.33	1.14		

Since this study had a quasi-experimental design, its participants were divided into experimental and control groups to check the effect of the FC approach as the treatment of the experiment in the EFL context. Results showed that there was a significant difference between the two types of instruction and the experimental group treated by flipped approach outperformed the control group and this is in line with most of the studies in related literature. For example, Abedi et al. (2019), in their comparative study of intermediate EFL learners' composition writing concluded that the experimental group instructed in flipped classrooms outperformed the control group in the post-test. In another study conducted by Mohammadi et al. (2019) which investigates the effect of the flipped classroom on the achievement of Iranian EFL learners and their willingness to communicate, the results were in line with the findings of this study. The researchers claimed that in addition to improvement in the post-tests, learners' willingness to communicate increased in the experimental group which was taught with the flipped approach. Namaziandost et al. (2019) examined the effect of flipped approach on learners' listening comprehension ability of upper-intermediate learners through an experimental pre-test post-test design and it was concluded that the experimental group had better performance in comparison with the control group. Also, Fathi and Rahimi (2020) in their study about the effects of flipped classroom on learners' writing skill concluded that the students' global writing significantly improved through flipped instruction and some implications were provided. In a recent study Namaziandost et al. (2020) investigated the attitudes of advanced EFL learners toward flipped classroom and the analysis of questionnaires

revealed that learners had positive attitudes regarding the flipped model. They suggested educators to use flipped technology for creating better learning environments.

5. Conclusion

This study sought to investigate the effect of flipped classroom approach on Iranian high school EFL learners' performance by using a quasi-experimental design and implementing pre-test and post-test to compare the FC class with the traditional one. The results revealed that applying the FC approach in an EFL context improves the students' learning performance. It can be concluded that FC instructional approach can help learners perform better than traditional approach classes. This study can provide some suggestions for EFL teachers to promote flipped classroom activities. Following principles can be seen as the efficacy of the approach by teachers who use it in English language classes: 1) selecting appropriate learning content for the flipped classroom, designing activities which are suitable for the nature of learning out of class and learning in class, 2) choosing suitable online learning platform which includes functionalities such as uploading videos by teachers and watching videos and taking quizzes by students, 3) advising students to take notes as an important strategy while watching the videos.

The results will be beneficial for EFL teachers to be aware of the process of an FC classroom and its advantages over the traditional classrooms in which the teacher is a lecturer and students have a passive role. Some learning strategies that are significantly applicable for learning a language, especially during the Covid-19 pandemic which majority of the classes have been running online and various related activities are explained as well.

The findings of this study cannot be generalized to other contexts because it has been conducted with high school students in a specified city in Iran and it can be its delimitation. The small sample size is a limitation of the study. Longitudinal studies with more participants should be conducted to examine the impact of the FC approach on learners' achievement over a long period. Furthermore, future studies can explore different learning activities which will influence students' learning performance in FC intervention instead of comparing the FC approach with the traditional methods.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article

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