



The Effects of Three Types of Flipped Learning through Shad Application on EFL Learners' Lexical and Grammatical Achievement

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ABSTRACT

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This study explored the effect of three models of flipped learning through shad application on the lexical and grammatical knowledge of Iranian high school EFL learners. 120 male pre-intermediate English learners took part in the study. They were placed in four groups (three experimental and one control) based on their performance on a placement test. The control group received conventional methods of teaching while experimental group one was taught through traditional flipping, experimental group two through demonstration-based instruction, and experimental group three through double-flipped instruction. Data were collected using pretests and posttests of lexical and grammatical knowledge. The results of ANCOVA showed that generally, the learners in the three experimental groups performed better than the control group, suggesting that using flipped instruction was effective in teaching lexical items and grammatical structures. The findings of this study can have valuable implications for those who are involved in learning and teaching English, materials preparation, and curriculum development.

Keywords: Flipped learning, Grammatical knowledge, Lexical knowledge, Shad application

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1. Introduction

During the 21st century, technology has been widespread across the world, and it has provided people with relatively easy access to various technological tools. As Zarrinfard et al. (2021) note, the meaning of learning environments and teacher-learner relationships have also changed, and almost all subject areas, especially English learning, have been affected by this transformation. In recent years, many teachers of English as a Foreign Language (EFL) have benefited from different technological aids to improve the teaching and learning processes (Mundir et al., 2022).

Introduced by Lage et al. (2000), flipped learning has become quite an ambitious attempt to satisfy learners' needs and encourage a learner-centered approach to learning with the use of some simple technologies. According to Zou et al. (2020), flipped learning, if used appropriately, has the potential to reverse the function of inside and outside of classroom activities. According to Hung (2017), in this type of learning, the learners have a choice about when, where, and how to have a look at the materials they are supposed to learn prior to their class, suggesting that learners have to assume responsibility for their own learning; this often results in a learner-centered environment. Moreover, flipped learning techniques are usually against more traditional ways of teaching that are based on categorical binary answers to any conceivable learning problem: correct or incorrect.

Three types of flipped learning were chosen to be used in the present study as treatment: traditional flipping, demonstration-based flipping, and double-flipped classroom. In traditional flipping, students are required to prepare themselves for the class and watch some short tutorial video clips before they come to class (Demirel, 2016). In the class, they are often busy doing exercises and practicing the important elements through engaging in debates and getting feedback from peers and the teacher. After the class, students attempt to expand and improve their knowledge by reviewing the things that they learnt in the class. In demonstration-based flipped learning, the focus of attention is on the process; the teacher makes a video record of him/herself doing each activity in a step-by-step fashion. This record is then sent to students to watch at home and to prepare to do similarly when they attend class (Buil- Fabregá et al., 2019). The students can review these videos as many times as they deem necessary in order to further reinforce their learning. In double-flipped classrooms, students play the role of the instructor; to show that they have developed new skills, they create their own video records. Here, too, the learners' learning is further reinforced by repeated exposure to videos of the way things are done (Demirel, 2016).

Nation (2001) acknowledges the importance of learning vocabulary and mentions that language learners also need to prioritize improving their vocabulary knowledge. Admittedly, learners with a poor vocabulary reservoir are more likely to experience problems in communicating with other language users (Mundir et al., 2022). Meanwhile, according to Khoshsima (2021), the grammar of a language is also essential for expressing meaning. Obviously, greater levels of familiarity with grammar can help learners better monitor their production and ensure more effective communication.

This study was carried out to check the applicability of flipped learning models, as instances of technology-assisted learning tools, to the context of EFL and to see if they could be used as a viable way of improving students' vocabulary and grammar achievement. Flipped learning was implemented through the Shad application in this study. Shad is the official application introduced by the Ministry of Education (MOE) of Iran to assist schoolteachers and students to change the situation effectively. The language-learning context of Iran is an EFL one. Thus, learners experience an extra hard situation because this language is not used in everyday conversations. The situation got worse during the COVID-19 pandemic since most of the institutions were closed, and few pursued their educational programs through virtual learning environments. This study attempted to examine the effects of implementing flipped learning in the language classrooms of Iranian high schools to see if it has any impact on the students' vocabulary and grammar knowledge.

Many studies (such as Izadpanah Soltanabadi et al., 2021; Mandasari & Wahyudin, 2021; Mundir et al., 2022) have explored the effectiveness of flipped instruction on different aspects of language learning; however, none of them has specifically focused on implementing flipped learning in high school context through the official application announced by the Ministry of Education. Moreover, this study was an attempt to compare the effectiveness of three models of flipped language learning through "Shad" application and a conventional way of teaching English to high school students on their lexical and grammatical knowledge. More specifically, this study was undertaken to address the research questions listed below:

RQ1: Are there any significant differences among the effects of Traditional flipping, Demonstration-based flipping, Double-flipped classroom, and conventional instruction on Iranian high school students' lexical knowledge?

RQ2: Are there any significant differences among the effects of Traditional flipping, Demonstration-based flipping, Double-flipped classroom, and conventional instruction on Iranian high school students' grammatical knowledge?

2. Literature Review

For many years, educators all around the world have been criticizing the rather traditional lecture-centered model of instruction used in many classrooms; they have reiterated that attention needs to be shifted from what the curriculum dictates to the needs of students (Zarrinfard et al., 2021). As a result of such efforts, recently, attention has been drawn to flipped learning, as a potentially suitable replacement for traditional instruction. This is largely because in flipped learning, digital tools are used to facilitate the process of changing direct teacher-centered instruction to individual learner-centered types of learning. This change in the type of instruction frees teachers from much of the traditional classroom chores and gives them the opportunity to think of finding new ways to maximize individual student learning (Zou et al., 2020). Meanwhile, students find more time to work in collaboration with peers and get feedback on how they are doing, and experience deeper involvement with course content.

In the context of teaching, flipped learning is almost a newcomer. This model of learning takes advantage of technology to facilitate students' learning; it also allows the teacher to use class time for interaction rather than lecturing (Demirel, 2016). By using videos to transfer the lecture time to learners' homes, this model of learning provides additional time for teachers to interact with students in class. In flipped learning, direct learning turns into individual learning. This is done through benefiting from one of several technologies used in this model (Izadpanah, 2022).

Polat et al. (2022) mention that learning culture has recently witnessed a change from a teacher-centered to a learner-centered model of instruction. In this new model, learners are assuming responsibility and more active involvement in their own learning. They are no longer located at the receiving end of the teaching/learning process; rather, they have a voice in each step of the learning process.

The last key point about flipped learning is the issue of professional educators (Polat et al., 2022). Li and Li (2022) have criticized the model on the ground that it may diminish teachers' authority and may eventually dismiss them altogether. It is a misunderstanding that the teacher is no longer needed, or has no essential role in the learning process, simply because this model of learning is student-centered. The fact is that in flipped learning, teachers are still a key factor. They are still the ones who have to make important decisions on what the content should be, how to adapt materials in case adaptations are needed, select and encourage the right types of strategies, manage the class time, and ensure that students spend much of their time interacting with others. Chang (2023) has stated that when a class is flipped, the role of the teacher

changes from a lecturer to someone who facilitates learning. S/he observes and monitors the class and focuses on areas where students have difficulty and might need assistance. S/he also offers learners guidelines as to how they can learn content. Throughout this process, the teacher constantly tries to provide learners with opportunities to engage themselves actively in meaningful learning.

Some critics (e.g. Gustian et al., 2023; Li & Li, 2022) have criticized flipped learning, arguing that the videos that are used in the model for educational purposes may gradually take the place of educators. This is quite misguided since Linling and Abdullah (2023) have discussed that professional teachers are always at the heart of flipped learning; they can never be replaced with anything. Managing a class and keeping it flipped require teachers whose role is as important as, if not more than, those in conventional classes.

In a typical flipped classroom, almost all the instructional activities that were traditionally carried out inside the class are moved completely out of the classroom, whereas the activities like students' homework, which were conventionally carried out outside of the classroom, are done inside the classroom (Jong et al., 2019). According to Anderson and Krathwohl (2001), given the potential of flipped learning in different areas of human education, it is no surprise that the model has recently gained momentum in the area of language education.

Some studies have been carried out regarding flipped instruction. In a relatively recent study, Mundir et al. (2022) compared the effects of traditional instruction, online, and flipped instruction on improving the vocabulary knowledge of EFL learners. The findings were indicative of the superiority of the flipped group in comparison with the online group. Zarrinfard et al. (2021) investigated the effect of flipping language classrooms on the general English course performance of a group of EFL learners. The findings showed that the achievement of the experimental group on the grammar and vocabulary post-tests was significantly better than that of the control group.

Izadpanah Soltanabadi et al. (2021) examined how flipping a language class may influence the vocabulary retention and recall of elementary-level EFL learners. The results indicated that there were significant impacts on both vocabulary recall and retention. Rezaei Fard et al. (2021) studied the effect of flipped learning on vocabulary achievement in an ESP context and reported significant results. It also turned out that flipping the classroom appeared to have positive effects on the student's attitude towards the course.

Khoshsima (2021) investigated the comparative effectiveness of blended and flipped classes in comparison with conventional teaching on the learning of grammar. The result suggested that the members of blended and flipped classes outperformed the control group. Mandasari and Wahyudin (2021)

studied the effect of flipped learning model on improving the level of satisfaction of learners with a grammar course and found it effective.

Bulut and Kocoglu (2020) examined the effect of flipped instruction on facilitating grammar acquisition amongst EFL learners. The findings indicated that the approach yielded superior academic outcomes in comparison with the traditional non-flipped method. In a similar study, Bezzazi (2019) examined the effect of flipped learning on EFL learners' grammatical proficiency. The findings suggested that, in comparison with traditional instruction, flipped learning was considerably more efficacious. Likewise, Saidah (2019) investigated whether the use of the flipped model of instruction affected learners' grammar development. It turned out that the use of the flipped classroom strategy had the potential to improve the grammar performance of the students.

Khanahmadi and Nasiri (2022) studied the effectiveness of flipped learning in an online context in improving the course performance of EFL learners. The result suggested that online flipped instruction could remarkably improve the performance of EFL learners. Sivarajan et al. (2021) evaluated the effectiveness of flipped classrooms (FC) and live demonstration (LD) on dental students' learning. The results revealed that, for two of the six assignments, the mean scores of the FC group were significantly better than the LD group.

According to the literature, it can be said that flipped learning has been shown to be an effective way of instruction that can have significant implications for different stakeholders including language learners and teachers, as well as syllabus designers. The key to designing a flipped classroom is to make sure that the technologies that are used are both familiar and accessible to students (Kim et al., 2014).

In this study, the researchers made use of the SHAD platform for uploading audio and video files. This platform, which has been designed by the Iranian Ministry of Education, allows students to upload and download audio and video files, and other learning tools. It also offers the possibility of negotiation among the users. Students can easily have access to the materials and review them as many times as they wish. For ease of access, the learning materials of each session can be partitioned into different sections based on the objectives of the course. However, in spite of the importance and effectiveness of online and flipped instruction, neither of them have been used frequently in the language-teaching context of Iran, especially prior to the COVID-19 era.

The outbreak of COVID-19 exerted very important effects on education, although in places like Iran, where Internet connections are poor, certain

problems were also created. The traditional concept of the classroom had to be transformed and adapted to the reality of the new educational norms. Flipped instruction, as one of the effective ways to turn the context of a conventional classroom into a highly flexible classroom mode, could be considered as a viable alternative to conventional instruction. As it was mentioned above, a number of studies have reported the benefits of flipped instruction in different areas. However, not many studies have actually considered the effect of such a model of instruction on language components. Even fewer studies have made a comparison among different forms of flipped learning. This study was intended to examine the effects of three types of flipped learning on L2 vocabulary and grammar knowledge.

3. Method

3.1. Participants

This study was carried out in a public secondary school in Alvand, Qazvin. One hundred and twenty high school students at the 10th grade took part in this study; they were selected from among 150 10th graders, and placed into four groups, and each group was randomly assigned to a different treatment condition. The participants aged between 16 and 17, and their level was lower intermediate based on the results of the placement test.

3.2. Materials and Instruments

The course book was ‘*Vision 1*’, which is taught as the English book for 10th graders; the grammatical structures and lexical items were selected based on the contents of the book. The book includes four lessons in which all four skills and all the components of English are included. The first lesson is about *saving nature*, and the vocabulary items are mostly related to this subject. The grammatical points in the first lesson are expressing future tense using *will* and *be going to* singular and plural types of nouns, and noun markers. Lesson two is about *wonders of creation*. The grammatical points of this lesson include adjectives (as...as structure, comparatives, superlatives, kinds of adjectives, and places of adjectives). The topic of lesson three is about *the value of knowledge*, and the grammatical structures are *past progressive*, *action and state verbs*, and *simple and continuous verbs*. The last lesson is about *traveling the world*, and the grammatical points include modals (can, may, must, and should), regular adverbs, and irregular adverbs. The students have two books for their English course including a student book containing 125 pages accompanied by a workbook containing 78 pages.

The instruments that were employed in this study included a placement test, a pretest and posttest of lexical items, and a pretest and posttest of grammatical structures. The Oxford Placement Test (OPT) was utilized as a

placement test to make sure the participants in each group were homogenous. The validity and reliability of this test have been checked and proved before; still, its reliability was checked again using the KR-21 formula, and it turned out to be 0.81. Sixty minutes were allocated for the placement test. The OPT included two parts: the first part (questions 1-40) and the second part (questions 41-60). The placement of the students (based on their score) was: beginner (1-17), elementary (18-27), lower intermediate (28-36), upper-intermediate (37-47), advanced (48-55), very advanced (56-60).

The pretest and posttest of lexical items included 40 multiple-choice items including the vocabulary taught during the treatment. The time allotted for the tests was 45 minutes; instructions were made clear for all the students. The test items were chosen from the previous versions of Konkur (the official university entrance exam in Iran). The reliability of the test was checked and the index was found (using the KR-21 formula) to be 0.79.

The pretest and posttest of grammatical structures also included 40 multiple-choice items containing the structures taught during the treatment. The allocated time for each of the tests was 45 minutes. The test items were chosen from the previous versions of Konkur. The reliability index of the test in the context of this study was re-estimated through KR-21; the result turned out to be 0.80.

3.3. Procedure

To check the participants' proficiency level and to make them homogeneous, the OPT was administered, and four groups of 30 students were formed based on the placement test results from among the 150 students. The participants in the control group received conventional instruction. During each session, the learners were provided with explanations and practices related to each lesson. All of the participants in this group participated in eight sessions of teaching each lasting for 45 minutes. Explaining the grammar points, giving the meaning of the words, and sometimes translating into their mother tongue were the main procedures implemented in this group.

The students of the experimental groups were instructed on grammar points and lexemes through flipped learning. The participants in these groups also participated in eight sessions of teaching each lasting for 45 minutes. The learners watched the files on their personal devices and computers. During the first session, the teacher explained to the learners how to use the files and what to do. There were three different types of flipped learning; therefore, three experimental groups were formed.

In the traditional flipping group, students prepared themselves for the class; before the class, they watched some short tutorial video files. The files were provided by the teacher and given to the students through Shad

application. The students had to practice these contents in class and discuss them, and the teacher provided them with appropriate feedback and comments about their performance. In each session, the students practiced the key concepts and did some exercises or engaged in debates, and the teacher provided them with individual feedback about their strengths and weak points. The teacher took notes of the points that had to be improved in order to make the explanation clearer. At the end of the class, the learners reviewed the things they had learnt. For example, the first lesson of the 10th grade has two main grammatical structures, which include using the modal verb *will* and *be going to* to talk about the future. The teacher corrected their mistakes about these two grammatical structures by providing some examples of their own plans for the future.

In the demonstration-based flipping group, the process was in focus. The teacher had recorded a video of himself performing activities; he provided the learners with the files through Shad application. Students studied this content for themselves and had to follow the teacher's model in class. Like the demo sessions in which new teachers demonstrate their teaching ability, the students came to the class and performed what they had watched and learned through the files. The students' learning was further reinforced when they used tutorial videos for the purpose of reviewing certain steps. These video files were also provided by the teacher.

In the double-flipped classroom group, the students were asked to assume the role of the teacher. The students recorded their own videos to show that they had mastered new skills. They had to teach the contents and record it as a video file, which they would share with their classmates through Shad application and after each session, they discussed their performance, thus reinforcing their learning. As the main concern of the present study was teaching grammar and vocabulary, the students in all three groups of flipped learning had to work on the sections that included grammatical points and new words or expressions.

After the treatment period, the students sat for the posttests. Test takers spent around 45 minutes on this task. The data collected through the tests were prepared and submitted to statistical analysis.

3.4. Data Analysis

To answer the research questions, ANCOVA was used to compare the scores of the learners of the four groups after removing the possible effect of the preexisting differences.

4. Results and Discussion

4.1. Results

4.1.1. Results on Vocabulary

The purpose of the first question was to see if there were any significant differences among the effects of traditional flipping, demonstration-based flipping, double-flipped classroom, and conventional instruction on students' lexical knowledge. To answer this question, an analysis of covariance was used. To control for the preexisting differences among the groups, the scores on the pretest were considered as the covariate.

As a prerequisite of ANCOVA, the normality of the scores of all groups were checked through the Kolmogorov-Smirnov test and all scores in all the groups proved to be normal since the *p-value* was above .05 for all groups. Furthermore, since the covariates were measured prior to the commencement of the treatments, there was no way for them to be affected by the treatment. Therefore, this assumption was not violated. Moreover, because in each ANCOVA, there was a single covariate, there could not be any correlations among covariates; in other words, this assumption was not applicable.

The index of Cronbach's Alpha was also checked to verify the reliability of the covariates assumption. The index ($r = .79$) confirmed that the measurement of the covariate was reliable. To check the linearity assumption, the scatterplot was examined; the four lines were straight, suggesting that the requirement of linearity was fulfilled. Furthermore, Levene's test (Levene Statistic (3, 116) = .64, $p = .58$) showed that the homogeneity of variances assumption was met.

To check the homogeneity of regression slopes, the significance level of the interaction between group and the pretest of lexical knowledge was checked. The result ($F_{(3, 112)} = 1.15, p = .33$) was not statistically significant, suggesting that this assumption was also met.

Having checked the assumptions, ANCOVA was applied. Descriptive statistics were summarized in Table 1, which shows that the mean scores of lexical knowledge in the control group ($M = 13.57$), traditional flipping group ($M = 13.60$), demonstration-based flipping group ($M = 13.40$), and double-flipped group ($M = 13.73$) are close to each other on the pretest; however, the mean scores on posttest of lexical knowledge are as follows: control group ($M = 14.50$), traditional flipping group ($M = 14.63$), demonstration-based flipping group ($M = 15.53$), and double flipped group ($M = 16.03$).

Table 1.
Descriptive Statistics of Lexical Knowledge Scores

	N	Mean	SD
Pretest of Control Group	30	13.57	2.23
Posttest of Control Group	30	14.50	1.50
Pretest of Traditional Flipping Group	30	13.60	2.40
Posttest of Traditional Flipping Group	30	14.63	2.18
Pretest of Demonstration-Based Flipping	30	13.40	1.95
Posttest of Demonstration-Based Flipping	30	15.53	1.63
Pretest of Double-Flipped Group	30	13.73	1.79
Posttest of Double-Flipped Group	30	16.03	1.60

Table 2 summarizes the results of the ANCOVA. After adjusting for the lexical knowledge scores on the pretest, significant differences could still be observed among the groups on their posttest performance ($F_{(3, 115)} = 8.16, p > .005$, partial eta squared = .176). Therefore, it can be claimed that the three types of flipped learning and conventional instruction are differentially effective on lexical knowledge.

Table 2.
ANCOVA Results on Lexical Knowledge

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	159.57 ^a	4	39.89	19.57	.000	.40
Intercept	213.65	1	213.65	104.81	.000	.47
lexicalpre	104.74	1	104.74	51.38	.000	.30
group	49.91	3	16.63	8.16	.000	.17
Error	234.42	115	2.03			
Total	27967.00	120				
Corrected Total	393.99	119				

To determine the significant differences among the four groups, pairwise comparisons were made (Table 3), which showed that although there was a mean difference of -0.06 between the control group and the traditional flipping group in favor of the traditional flipping group, the difference was not statistically significant ($p > .05$).

In addition, the demonstration-based flipping and double-flipped groups had a significantly better performance than both the traditional flipping and the control groups; however, the difference between the demonstration-based group and the double-flipped group was not significant.

Table 3.*Pairwise Comparisons for Lexical Knowledge Scores*

(I) group	(J) group	Mean Difference (I-J)	SE	Sig. ^b
Control Group	Traditional Flipping	-.06	.36	1.000
	Demo-based Flipping	-1.14*	.36	.014
	Double Flipped	-1.45*	.369	.001
Traditional Flipping	Demo-based Flipping	-1.08*	.36	.024
	Double Flipped	-1.39*	.36	.001
Demo-based Flipping	Double Flipped	-.31	.36	1.000

4.1.2. Results on Grammar

The second research question of sought to investigate significant differences among the effects of traditional flipping, demonstration-based flipping, double-flipped classroom, and conventional instruction on students' grammatical knowledge. Another ANCOVA was used to answer this question. Like the first question, prior to using ANCOVA, all its assumptions were checked, and there were no violations.

Table 4 summarizes the descriptive statistics for the scores in the groups. It can be observed that the mean scores of grammatical knowledge in the control group ($M = 12.90$), traditional flipping group ($M = 13.60$), demonstration-based flipping group ($M = 13.30$), and double-flipped group ($M = 13.73$) are close to each other on the pretest; however, on the posttest, they are slightly more different. To see if these differences are significant, ANCOVA was used.

Table 4.*Descriptive Statistics for Grammatical Knowledge*

	N	Mean	SD
Pretest of Control Group	30	12.90	1.70
Posttest of Control Group	30	13.70	1.60
Pretest of Traditional Flipping Group	30	13.60	2.40
Posttest of Traditional Flipping Group	30	15.17	2.11
Pretest of Demonstration-Based Flipping	30	13.30	1.70
Posttest of Demonstration-Based Flipping	30	15.90	1.56
Pretest of Double-Flipped Group	30	13.73	1.79
Posttest of Double-Flipped Group	30	16.03	1.60

The results of ANCOVA (Table 5) showed that, after adjusting for the initial differences on the pretest, significant differences were seen among the groups on the posttest. ($F_{(3, 115)} = 12.12, p > .005$, partial eta squared = .24). Accordingly, it can be claimed that the differences among the effects of the three types of flipped learning and conventional instruction on grammatical knowledge are significant.

Table 5.
ANCOVA Results on Grammatical Knowledge

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	211.82 ^a	4	52.95	25.22	.000	.46
Intercept	168.87	1	168.87	80.45	.000	.41
grammarpre	108.75	1	108.75	51.81	.000	.31
group	76.35	3	25.45	12.12	.000	.24
Error	241.38	115	2.09			
Total	28178.00	120				
Corrected Total	453.20	119				

Pairwise comparisons were made (Table 6) to determine the significant differences among the four groups in terms of grammatical knowledge. The result revealed a statistically significant difference ($p < .05$) in grammatical knowledge between the control group and all the other flipping groups in favor of the flipping groups. Moreover, although the performance of the traditional flipping group was not as good as that of the other two flipping groups, the observed differences among the flipping groups did not reach statistically significant levels.

Table 6.
Pairwise Comparisons for Grammatical Knowledge Scores

(I) group	(J) group	Mean Difference (I-J)	SE	Sig. ^b
Control Group	Traditional Flipping	-1.11*	.37	.023
	Demo-based Flipping	-1.99*	.37	.000
	Double Flipped	-1.91*	.37	.000
Traditional Flipping	Demo-based Flipping	-.88	.37	.120

	Double Flipped	-.80	.37	.208
Demo-based Flipping	Double Flipped	.08	.37	1.000

4.2. Discussion

The main purpose of the present study was to compare the effect of three types of flipped learning on EFL learners' lexical and grammatical knowledge. ANCOVA results confirmed the superiority of flipped instruction. Regardless of the type of flipped learning, it can be generally discussed that we might have to move towards the approaches and methods that are more student-centered and, therefore, more responsibility should be given to learners in language learning classes.

One reason for the superiority of flipped instruction over conventional methods could be that when the students in the flipped groups made use of various educational resources outside of the classroom, they could have achieved a higher level of readiness for their inside-the-classroom activities. As a result, instead of practicing minute linguistic forms, their class time could be spent on more demanding cognitive activities.

Another reason for these results may be attributed to the nature of flipped learning, in which the responsibility for learning is placed on the shoulders of the learners. This feature of flipped learning helps learners develop a higher level of learner autonomy, which may in turn, contribute to their learning. This practice also allows teachers to act better as facilitators of student learning by focusing on and identifying learners' areas of difficulty and assisting them to solve their problems (Hung, 2017). The findings also lend support to the claim made by Linling and Abdullah (2023) that flipped instruction, by using the internet and mobile devices, allows easy access to the teaching materials. Flipped learning creates the possibility of much more active use of the time of the class; moreover, it makes it possible for students to manage and control their learning. In addition, if for one reason or another, students cannot participate in all their classes, they can have the opportunity to have access to the same materials and learn them outside of the classroom. Our results correlate with the studies done by Mundir et al. (2022), Izadpanah Soltanabadi et al. (2021), Rezaei Fard et al. (2021), Khanahmadi and Nasiri (2022), and Zarrinfard et al. (2021), who found that flipped learning has positive effects on improving EFL learners' lexical knowledge.

Deeper analysis revealed that from among the three types of flipped instruction, traditional flipping was not as effective as the other two types. As mentioned by Gusitan et al (2023), this could be due to the nature of this type of flipped learning in which there are somehow similarities with conventional

instruction in that the teacher teaches everything via video files, and learners practice everything in the classroom environment, whereas in the other two types, students have more responsibility regarding the teaching of the materials and their learning process. Demonstration-based flipping and double-flipped instruction also made no significant difference; this could be due to the similarities between these two types according to their definition provided in chapters one and three. Another reason for the similar effects of double-flipped instruction and demonstration-based flipping can be that these two types activate cooperation among learners. Both types emphasize cooperative learning, which is conducive to improving learners' higher-order thinking skills (Demirel, 2016). In addition, these two types of flipped instruction can create conditions for the interactive use of language learning tasks, which may in turn, enhance the communicative competence of the students (Mundir et al. 2022). It may, therefore, be claimed that one reason for the improvement of the students' lexical and grammatical knowledge could be the collaborative nature of flipped learning.

Considering grammatical knowledge, our results appear to be in agreement with those of studies done by Khoshsima (2021), Saidah (2019), Bezzazi (2019), Mandasari and Wahyudin (2021), Khanahmadi and Nasiri (2022), and Bulut and Kocuglu (2020), who drew the final conclusion that flipped learning positively affects EFL learners' grammatical knowledge. This might be due to the nature of grammatical structures, which are mostly formula-based and can be learned more easily through practices and drills, which are used in all types of flipped instruction.

The results of this study are somehow mirroring the findings observed in much of the literature about active learner involvement and participation, claiming that whenever learners are given the responsibility for their learning, they feel more confident and care more about the outcomes (Moravec et al., 2010).

While a number of previous studies have come to the conclusion that flipped instruction can open new horizons for improving the quality of education, some other studies highlight the limitations of this type of instruction. For instance, it is claimed that in the flipped model, some challenges might be faced, which can be summarized as follows: more time may be needed to plan a functional flipped course (Schlairet et al. 2014), some students may behave in ways that are reminiscent of low self-regulation (Sun et al. 2017), some students may completely fail to manage their time and coordinating their inside and outside of the classroom activities; this can have a large impact on the effectiveness of their learning, especially the outside-of-the-classroom part (Lai & Hwang, 2016). The findings of this study do not appear to support such claims.

Another factor that may create a challenge in the effective application of flipped learning has to do with technological issues. In fact, flipped learning

involves some good quality learning materials for the outside-of-the-classroom learning activities, and a decent degree of command and control over technological devices like computers and mobile devices is required for the successful implementation of such a course. Meanwhile, sometimes the accessibility of such devices can cause problems. Several studies (e.g., Giuliano & Moser, 2016; Mason et al. 2013) have shown that video-recorded lectures may negatively influence the learning of students because such instructional tools are often quite limited in pedagogical features; for example, audio or video quality may be poor, which makes the lesson quite boring and lifeless. Other studies (e.g., Jensen et al., 2015) have suggested that lack of access to technological tools can actually make flipped instruction rather daunting. Moreover, although it is generally agreed that the new generation of learners does not have as many problems with the use of technological devices as their predecessors, some authors have stated that lack of sufficient competence in using technological devices might cause problems, which may ultimately challenge the effectiveness of flipped instruction (Akçayir & Akçayir, 2018). The results of this study are in contradiction with these reports, as well.

The findings of the present study also support the claim by Demirel (2016) that flipped learning utilizes a range of technological tools to facilitate students' learning in such a way that learners find their learning experience more comfortable. Likewise, the teacher is freed from delivering lectures, and can, therefore, allocate the time of the classroom to communicative interactions (Allen et al., 2007). Flipped instruction makes the use of various modes of instruction possible. It also allows for various instructional activities such as independent as well as group work, research, and evaluation.

5. Conclusion and Implications

Based on the findings of this study, it is concluded that regardless of the type, flipped learning is positively effective in improving the performance of EFL learners. However, it should be mentioned that one type, i.e. traditional flipping was not so effective in improving the learners' lexical knowledge.

Flipped instruction is capable of enabling EFL learners to prepare themselves and work with the course content at their personal pace and in accordance with their personal needs. Similar to what Zarrinfard et al. (2021) have mentioned, it was observed that learners might benefit from some opportunities like looking up unfamiliar words in dictionaries, learning more about unfamiliar things they face while preparing new materials, and reading additional resources to expand their knowledge about the subjects. Flipped instruction provides learners with certain advantages; it is a flexible model of

teaching and it gives learners freedom to plan their learning and do both their learning and the assigned homework at their own selected time and place. (Zarrinfard et al., 2021).

It may also be concluded that teachers can go beyond the limits of time and place to carry out their teaching duties. They do not confine their teaching to the time and space of the classroom environment. This allows both teachers and learners to save the valuable time of the class for more important problems to be discussed and solved during class time.

One of the strengths of the present study may be that it tried to turn an English language course into a flipped course with the use of the Shad application. Despite the criticisms by some teachers against the usefulness of this application in teaching and learning, at least the results of the present study indicated that flipping the class, especially with the use of Shad, improved the achievement of the learners and reduced their anxiety.

Based on these findings, it may also be understood that we cannot assume any superiority for any of the types of flipped learning; there is no reason to choose a specific type. Since the participants benefited equally from all types, according to the context of teaching, population, classroom environment and equipment, learners' level of proficiency, etc., teachers can choose any type of flipped instruction they deem suitable.

In the present era, when digital technologies are in use almost in all areas of life, learning and teaching cannot be exempted from this general trend; in fact, the teaching/learning process has already been heavily influenced by technology and the use of various forms of multimedia. The implementation of technological aids to language learning supports successful learning. The findings of this study also confirm that the use of technological tools in language classes can potentially solve the problems of language learners, improve their learning achievement, and reduce their anxiety (Al-Kathiri, 2015). Thus, it may be concluded that when the flipping of a class is mediated by the use of some technological tools, students are placed in a better position to learn a second language without suffering from much debilitating anxiety. In addition, technology allows learners to learn from a distance. Among the strengths of distance learning are its features of adaptability and accessibility. Since a flipped class can be run online, once the learners are connected to the internet, they can have access the class from every place at any time. Therefore, the final conclusion to be drawn is that applying flipped instruction improves learners' autonomy and independent learning (Mandasari, 2020).

While it is acknowledged that caution should be taken when drawing implications from a single study, there may be certain pedagogical implications for the following stakeholders: The findings of the present study are expected to be valuable to EFL teachers. Novice EFL teachers have often an incomplete image of how teaching takes place and what they practice is based on what they are told to do. Keeping them well informed of up-to-date

theoretical and practical issues about the ways of implementing new technologies and techniques can be enlightening for them. However, teachers should be careful not to completely shift their responsibility to their students since they might not be able to handle a class and its circumstances. In these situations, classrooms may run out of control or become difficult to manage, and some students might think that their teacher is not responsible enough. Nevertheless, ignoring students' capabilities in classrooms may result in their marginalization. This study reminds us that teachers should take advantage of student-centered methods as they provide learners with more opportunities to prove themselves.

The findings of this study may also be helpful for teacher trainers. Teacher trainers often introduce outdated language teaching ideologies, insights, and methods to their trainees. Teacher trainers should be aware of instructing appropriate practices such as using new technologies and techniques to make classes more active and lively. Syllabus and curriculum designers may also find the results of this study interesting and relevant. Innovative instructional techniques like flipping a classroom can inspire EFL materials designers to prepare materials that are more individualized and can satisfy a wider range of learning needs that result from the different preferences of individual learners.

Despite the above-mentioned points, due to the limitations and delimitations of the study including sample size, duration of the treatment, the context of the experiment, etc., it is suggested that other studies be carried out with other samples and in different contexts so that more solid and generalizable results are obtained.

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