

VOCABULARY LEARNING IN THE MOBILE-ASSISTED FLIPPED CLASSROOM IN AN IRANIAN EFL CONTEXT

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Abstract

The emergence of flipped instruction has provided new opportunities to improve English language learning. The present study attempted to investigate the effects of flipped learning strategy on enhancing the vocabulary knowledge of Iranian EFL learners. To this end, the authors assigned 26 learners from an English institute to the flipped and conventional groups. They adopted a two-group counterbalanced design in this research. In the flipped classroom, the teacher posted the course materials via *Telegram* in advance to the class. Inside the classroom, the participants engaged in various peer and group activities including pre-communicative sentence arrangement, communicative tasks, pair, and group discussion, role-play and storytelling. The data were from multiple data sources including a vocabulary knowledge test, a student-recorded portfolio and interviews. The results revealed that the participants performed better in the conventional classroom than the flipped learning classroom. However, they did not have positive attitudes toward inverted learning. The authors presented insights into the impacts of flipped instruction on the quality of vocabulary learning and offered recommendations and implications for future practice.

Keywords: flipped learning; mobile-assisted language learning; technology

1. Introduction

In recent years, educators have invested considerable efforts in incorporating digital technologies into EFL pedagogy to invigorate students in new ways. Studies revealed that in traditional methods, students get involved in receptive activities instead of productive ones in English vocabulary acquisition due to exam-oriented instruction, heavy reliance on teachers, inadequate, authentic, and meaningful learning experiences (Li, 2010). Similarly, teachers rely heavily on traditional methods of teaching in Iran. They encourage learners to carry bilingual

dictionaries at school, and they spend considerable time explaining and analyzing the vocabularies in isolation and translating them to their native language. Consequently, instructors and students rarely develop knowledge to use words for communicative purposes inside and outside the classroom.

These problems strongly suggest that we need to enforce an urgent shift in English language teaching methodology and develop new strategies (Toto & Nguyen, 2009). Therefore, educators utilized innovative models such as flipped learning (Strayer, 2012; Bishop & Verleger, 2013), which have evolved parallel to advancements in computer and mobile device technology to teach the English language. Supposedly, the incorporation of technology into the flipped classroom provides students with opportunities to prepare out of the class and engage in active learning within the classroom to enhance language knowledge (Fulton, 2012). In this study, we sought to explore the mobile assisted flipped classroom in the teaching-learning process.

2. Literature review

2.1. Characteristics of a flipped classroom

According to Bergmann & Sams (2014), in a flipped-classroom approach students perform classwork at home and practice homework at school. The flipped approach reverses inside and outside class activities; the learners study theoretical parts of the lesson via presentations and online videos in advance, reflect on the content and form questions (Kim, Khera, & Getman, 2014). Inside the classroom, teachers create an interactive environment for students to work in pairs and groups, engage in problem-solving, discussion, and high-level thinking skills (O'Flaherty & Phillips, 2015). Because instruction takes different forms outside of the classroom, students do not limit themselves to class-time constraints. Instructors deliver lesson content outside the classroom so that they guide students to engage in various collaborative activities and co-construct knowledge with their teachers and peers inside the classroom. This allows them to learn actively, increase motivation, and facilitate deeper levels of understanding.

As a touchstone of the flipped classroom, teachers adjust learning to students' level and needs in order to stimulate engagement and interaction. Since students do not perform at the same level, instructors provide adjusted and individualized instruction and feedback. Teachers play contrasting roles in the inverted learning and conventional classroom. They are the only valid provider of knowledge so that students are passive listeners in the traditional classrooms.

On the contrary, in the flipped model, they are mediators of knowledge and require learners to manage their learning from the beginning. They intentionally provide students with the lesson content in advance to encourage them reflect on their learning and develop deep understanding about the subject matter. Consequently, they have ample opportunities to engage in various tasks, and put to practice their knowledge at school. However, in this approach, instructors need to develop certain skills such as familiarity with technology, renewal of classroom management, and designing flexible syllabus (Flipped Learning Network, 2014).

2.2. Previous studies into flipped learning

The results of many studies indicated that the flipped model excels in foreign language learning classrooms. McLaughlin and Rhoney (2015) found that the students who used the online tools scored higher on their final exam. Hung (2015) concluded that students in the structured, as well as semi-structured flipped classes, outperformed the learners in the traditional classroom. Many studies so far illustrated that the assimilation of technology into the flipped classroom has been beneficial. For example, Zhang (2015) employed some teacher-created videos in his flipped business English course. Eventually, the findings revealed the students' vocabulary gain and satisfaction with the flipped learning. Similarly, the finding of the studies by Sung (2015) and Yang (2017) showed the learners' positive opinions on the inverted classroom.

Lin et al. (2018) compared the students' performance in two modes of teaching: a combination of the flipped classroom and peer evaluation via mobile devices and traditional instruction. The findings revealed that students in the former performed better than in the latter. Also, Wang (2016) studied the use of mobile devices in a flipped learning classroom in contrast with a traditional classroom among a group of eleventh graders. The results revealed that learners in the flipped classroom improved their performance. Mu (2017) investigated the effects of mobile-assisted flipped instruction on the learners' oral proficiency. The findings indicated that the participants enhanced their oral proficiency significantly. They reported affordance of more communication opportunities, sufficient collaborations, and flexible self-direction. Another study by Hsieh et al. (2017) revealed that the participants using LINE in an oral classroom developed positive attitudes and improved their idiomatic knowledge considerably. Additionally, Hwang et al. (2015) made a critical analysis of incorporating mobile technology into the flipped learning mode. They believed the mobile-assisted language approach facilitated students' learning in both physical and social contexts.

However, not all studies reported positive attitudes about inverted classroom. For example, Webb, Doman, and Pusey (2014) reported that the majority of subjects in the flipped learning preferred in-class explanation rather than video lectures. Also, teachers agreed that they had difficulty implementing the model properly. Other studies demonstrated that flipped learning did not enhance participants' language knowledge. Fraga and Harmon (2015) concluded that flipped classroom instruction did not affect undergraduate students' word study exam scores. Also, Alhamami (2019) investigated the usefulness of flipped language learning in a reading course. The findings indicated that the face-to-face traditional and flipped classroom can equally enhance the reading skill of level-one students. Moreover, Mori et al. (2016) carried out a study to investigate the use of the flipped approach in comparison to conventional teaching in Chinese character learning. The findings indicated that introductory participants in the flipped model outperformed those in the conventional one whereas statistics analysis revealed no significant improvement for the intermediate students. Finally, Oh (2017) studied the effects of peer flipped teaching strategy on engagement and achievement of Freshman College students with limited proficiency. Statistically, the traditional and flipped classrooms were the same.

2.3. Mobile-assisted language learning

The assimilation of mobile technology into language learning offers numerous advantages to EFL pedagogy. Innovative tools have created new opportunities to acquire language beyond the walls of classroom. Mobile-learning benefits language pedagogy since it is adaptable to participants' learning styles, is easily accessible, and improves interaction between instructors and students (Stockwell, 2010). The mobile devices created learning opportunities for EFL/ESL learners to acquire various aspects of language at different levels. Increasingly, educators have incorporated vocabulary into CALL and MALL programs (e.g., Dodigovic, 2005; Houser & Thornton, 2006). Consequently, researchers developed some programs such as multimedia lexical learning collections and tools consisting of written texts and electronic glosses (Qing Ma & Kelly, 2006) to enhance vocabulary knowledge.

Ou-Yang and Wu (2017) demonstrated that mobile-assisted language learning is a flexible process. They added that learners' language proficiency, their learning style, as well as learning behavior affect the process of language acquisition. To see the relationship between mobile assisted language learning and vocabulary achievement, Lin and Yu (2016) used the presentation modes of text alone, text and image, text and audio, and a mix of all these modes.

The study showed the students who used the audio mode increased their vocabulary proficiency.

Recently, the role of MALL is growing among Iranian educators and researchers. They assimilated vocabulary, grammar, speaking and listening programs with mobile learning. Jafari and Chalak (2016) investigated the use of *WhatsApp* in a vocabulary learning program among Iranian school learners. The results proved that regular and technology-supported classrooms did not differ significantly. Additionally, Fotouhi-Ghazvini et al. (2009) demonstrated that the students who used mobile assisted language learning games developed positive attitudes about English learning. Also, Kabiri and Khatibi (2013) reported that the majority of Iranian EFL students learn vocabulary through SMS. Finally, other studies such as Azar and Nassiri (2014) and Baleghizadeh and Oladrostam (2010) suggested that EFL learners could use the potential of MALL to improve their listening comprehension and grammatical accuracy.

3. Methodology

3.1. The aims

This study aims at answering these research questions:

1. Does the flipped learning strategy improve the vocabulary knowledge of students?
2. How do learners perceive the flipped learning experience?

To achieve the goal, the current study applied the concept of flipping strategy to groups learning English for about twelve weeks. The same teacher instructed students in both the conventional and flipped classrooms. A counterbalanced design was applied to find out the effect of flipping strategy on participants' vocabulary knowledge so that we could nullify the effect of treatment order or other factors such as tiredness that might affect the results. At the outset, the teacher divided learners into 5 groups in each of the classes. During the first five weeks, he applied the non-flip method to class F1 and the flipped strategy to class F2. After the midterm, during the next 5 weeks, the instructor reversed the teaching methods. He implemented the flipping strategy in class F1 and the conventional method in class F2.

3.2. Participants and context

In the present study, the participants were 26 intermediate female learners aged between 16 and 25. The teacher assigned 14 students to one group (F1) and 12 learners to the second (F2). All of them were native Kurdish speakers attending private English institutes for almost 3 years.

The learners in both groups had been studying the *Interchange* book series before arriving at the intermediate level.

3.3. Design and procedure

3.3.1. Instructional procedure

The researchers chose the *Telegram* application for online interaction between teachers and participants of the study. They could easily post messages, audio, video, and other files via the application, which is available for IOS and Android operating systems. Both teachers and learners knew how to work with this application. In the current study, they also chose another tool named *Socrative*, which is a formative assessment tool allowing teachers and learners to evaluate participants' involvement, understanding, and progress in real-time in class via quizzes students receive on their own smartphone. Quizzes can be true/false, multiple-choice, short answers, or open-ended questions. This application is accessed via a website or app, with separate apps for teachers and students. After creating a free account, teachers enter a public room automatically. The room is a virtual meeting place where they can create, search for, copy, and edit their quizzes. They can observe all learners' answers immediately, identify their problems, and then offer feedback to them.

In the flipped classroom, the learners listened to an audio lecture or read a PowerPoint presentation explaining what they must do at home. This instructed them to prepare for the regular weekly and end of the term quizzes. Additionally, the audio delivered through the *Telegram* application introduced the topics for classroom activities and discussion one day before the class. For example, if the topic was 'family', students needed preparation to discuss concepts of parents-children relationship, divorce, and adoption. Importantly, only the participants in the flipped classroom had access to the audio in advance. The topics comprised 'an introduction to a lecture', 'chatting about a series', 'joining a gym', 'a design presentation', and 'a film review'.

Learners had to listen to the audio in order to guess the meaning from context, check the pronunciation and spelling of new words, find synonyms and antonyms for unknown vocabulary items, collocation, and their grammatical function to become comfortable with their uses. Pre-class activities aimed to engage learners in lower-level thinking skills of "remembering, understanding, and applying" (Anderson et al., 2001). The students had to keep a portfolio of their works on their mobile devices during the pre-class stage. Since the learners

had worked on the content, the teacher did not give lecture about the lesson anymore in the classroom.

During class time, students had to take part in various interactive activities to demonstrate what they had learned at home. The class began with learners' questions about the problems they had noticed at home. Then, inside the classroom, the teacher selected an adaptation of the task model proposed by Jane (1996) and Littlewood (2004) to engage them in various pre-communicative sentence arrangement, communicative activities, pair and group discussion, role-play, and storytelling. The researchers used these tasks to tap into learners' "higher-order thinking skills" (Anderson et al., 2001). In the conventional model, the teacher played the audio and gave elaborate explanations about the lesson inside the classroom. He explained grammar, unknown vocabulary items, and answered some comprehension questions related to the topic. Then, the teacher replayed the audio, paused after each statement, and had the students repeat at least one sentence. Next, the teacher checked the pronunciation and comprehension of the whole audio and the meaning of certain words. The learners in the control group completed weekly and end-of-the-term vocabulary quizzes, which were the same as those participants received in the flipped classroom.

3.3.2 Testing procedure

To measure the participants' vocabulary knowledge in both classes, the same pre- and post-tests consisting of 40 multiple-choice lexical items based on the lesson content were administered. Assessment of participants included off-line and on-line activities. First, to ensure the participants had completed the assigned work, they had to record a summary of the audio files and deliver it to the teacher. It fulfilled two purposes: they needed to use vocabulary and concepts they had learned about the topic, and the teacher could use it to assess their pronunciation. Second, the participants had to take online quizzes in the forms we described above via the *Socrative* application. Finally, a flipped learning experience questionnaire consisting of 20 statements was administered to both classes.

3.4. Data collection tools and procedures

3.4.1. Vocabulary test and weekly quizzes

The authors administered a pre- and post-test consisting of 40 multiple-choice items to measure the lexical knowledge of the flipped and conventional groups. 80 vocabulary items were

developed based on the lesson content. Additionally, the content of the tests was examined by two teachers, and its reliability test was measured to be 0.72. Finally, the test was split into halves based on odd and even numbers for pre-test and post-tests. Additionally, weekly quizzes which consisted of multiple-choice tests and short-answer questions were used in the study.

3.4.2. Interview and questionnaire

The interviews included two open-ended questions:

1. What are your impressions of the flipped and conventional learning experience?
2. What are your attitudes about using technology in the flipped classroom?

The questionnaire, on the other hand, consisted of 20 statements on a five-point Likert scale from strongly agree to strongly disagree.

4. Findings and discussion

Mixed model ANOVA was used to determine whether the flipped approach or traditional method was more effective on learners' vocabulary achievement. With regard to their post-test, the participants in the traditional class scored higher (0.80, $p \leq 0.001$) than those in the flipped context (Table 2). Table 1 presents descriptive statistics of the final score and teaching method.

Table 1. Descriptive statistics of final score and teaching methods

Method	Mean	Std. error.	Df	95% Confidence Interval	
				Lower Bound	Upper Bound
Traditional	14.159	.052	25.000	14.052	14.265
Flipped	13.357	.088	25.000	13.176	13.537

The results summarised in Table 2 show that under different teaching methods, participants' post-test scores in the flipped and traditional classrooms were different. Participants in both groups (F1 and F2) scored higher in the traditional class than the flipped one: the mean score was .80 higher than that of the flipped classroom ($p \leq 0.001$).

Table 2. Pairwise comparisons between classes (F1, F2)

(I) method	(J) method	MD	Std. error	df	Sig.	95% Confidence Interval for Difference	
						Lower Bound	Upper Bound
Traditional	Flipped	.802	.078	25	.000	.642	.961
Flipped	Traditional	-.802	.078	25	.000	-.961	-.642

Concerning students' quizzes, the scores of subjects did not differ significantly between flipped and traditional classrooms (Table 3). Table 4 presents descriptive statistics of quiz score and teaching method.

Table 3. Descriptive statistics of quiz score and teaching method

Method	Mean	Std. error.	df	95% Confidence Interval	
				Lower Bound	Upper Bound
Traditional	16.215	.159	50	15.896	16.534
Flipped	16.031	.159	50	15.712	16.350

Table4: Pairwise comparisons between classes (F1, F2)

(I) method	(J) method	Mean	Std. error	df	Sig.	95% Confidence Interval for Difference	
						Lower Bound	Upper Bound
Traditional	Flipped	.185	.225	50	.415	-.267	.635
Flipped	Traditional	-.185	.225	50	.415	-.636	.267

In our study, contrary to the majority of previous studies, we found that the flipped strategy learning was not more efficient than the non-flipped learning. The learners did not finally develop higher vocabulary knowledge than the regular (conventional) classroom. Results proved that using flipped learning in an Iranian EFL vocabulary class was not beneficial; the participants performed better in the conventional or non-flipped classroom. Concerning the participants' attitudes, the majority of them reported negative attitudes about the flipped classroom. The findings of the present study agreed with results by Alhamami (2019) and Mori

et al. (2016). They also confirmed the findings of Oh (2017) that showed an insignificant difference between the experimental and control groups. However, they contrasted with findings by Kang (2015), and Zhang et al. (2016), who reported that flipped learning enhanced learners' vocabulary achievement. Additionally, the results contrasted with the findings by Azar and Nassiri (2014), Amiryousefi (2017), Chen et al. (2017), and Lin et al. (2015).

Therefore, EFL teachers are advised to be cautious when using the flipped strategy in EFL contexts. Concerning the students' attitudes toward the flipped classroom, the results of the current study were in line with Webb et al. (2014). However, the findings contrasted with Prefume (2015), Haghighi et al. (2018), and Gross et al. (2015). The authors expected better performance in the flipped classroom; however, when learners moved from conventional to the flipped classroom, their scores dropped. Several reasons may account for such findings. Because teachers did not have previous experience with such methods, we think they need to receive special training in terms of appropriately flipping and managing classes. Similarly, they should instruct learners how to practice self-regulated learning within flipped learning context. Some participants reported having difficulty engaging in class activities because they were not prepared to face such a shift in methodology.

Many participants were reluctant to prepare for or participate in class activities because they thought the final score was more important than class engagement. Partly, this is due to their prior learning experiences that prioritize rote memorization and end-of-term score. Unfortunately, our sample had limited access to authentic learning materials or English native speakers, thus, they could have developed deficient knowledge. Also, practicing self-paced learning required theoretical and procedural knowledge as well as appropriate learning strategies which they lacked.

The flipped classroom was designed to study certain instructional materials outside the classroom in order to free up time for learner-learner and instructor-learner interactions. However, some participants commented that they did not know enough about the flipped approach or they did not like learning before class. Moreover, while in the non-flipped classroom class time was designated for learning, in the flipped classroom learners had to decide when and where to study on their own; not all of them succeeded in doing so. Instructors required the participants to keep a record of their activities outside the classroom and take part in online quizzes; meanwhile, they could not guarantee students carried out their responsibilities. As a result, some of them had to sit up class time instead of taking part in group activities and discussions.

The participants argued that the conventional classroom was more helpful because the teacher's explanations inside the class could suffice. Some participants agreed that self-study was not an effective idea. Others reported that flipped learning enhanced the learners' active learning rather than helped them improve their language knowledge. This was aligned with the findings by Haghighi et al. (2018), who reported that EFL learners in the flipped classroom were more active than in the conventional classroom. Some participants commented that "to get higher scores, you need to read the material just inside the class", but the flipped learning did not give them opportunities to read in the classroom. A few of them mentioned that different teaching methods did not necessarily affect their score since everything depended on how hard they studied. They thought online audios or videos were time-consuming, unnecessary, and unhelpful; they either did not listen or spent only brief time with them.

Before our participants had experienced the flipped classroom learning, they were willing to practice self-paced learning, but when the project ended, they had adverse views; they did not regard it useful. The participants in the flipped classroom argued that they favored the traditional method since the pre-class activities were extra work for them. Many learners thought that in-class tasks and activities in the flipped mode were more interesting and lively than pre-class ones but did not lead to vocabulary knowledge. They believed it took them considerable time to perform out-of-class activities and homework in the flipped classroom. They commented that the inverted classroom was fun because they could visit websites and talk to their teacher and classmates hence reduce the feeling of boring and tension.

Technology-based learning will only succeed if learners are in favour of technology use. Amiryousefi (2017) showed that participants usually accept classroom technology. However, only about nine percent of the participants in the current study agreed to recommend learning through technology to a friend. Most were distracted when searching for materials on-line and could not watch videos or listen to audios for the next class. Fifty percent of the learners in the flipped classroom stated they dislike listening to or watching their lessons online in the future because they would not afford the computer and internet expenses. About thirty five percent admitted that they listened to audios or watched the videos in the current study because they were required to do so. Five participants believed learning through audios and videos could improve their vocabulary competence. Ten students commented *Socrative* and *Telegram* were easy and applicable, but they were unwilling to learn English in a way different from their regular classroom. In general, the learners did not favor the flipped classroom.

5. Conclusions

Contrary to many previous studies, our research revealed that the implementation of the mobile-assisted flipped learning did not affect the vocabulary achievement of Iranian EFL learners positively. The participants in the conventional classroom still outperformed their counterparts in the flipped classroom. Although the latter required them to spend considerable time doing assignments, the students in the former performed better. Therefore, certain conclusions and recommendations can be offered. First, teacher training courses should accommodate programs for designing and implementing flipped models. Second, a review of the literature suggested various flipped classroom models, so schools and universities should carry out pilot studies to discover those compatible with the local EFL context. Third, administrators and teachers should seek ways to motivate learners and integrate technology into EFL classes appropriately.

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