



The Effect of Flipped Learning on Concrete and Abstract Vocabulary Learning and Retention among Iranian Intermediate English Language Learners

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Abstract: The present study is an attempt to examine the impact of flipped language learning (FLL) on vocabulary learning and retention, focusing both on concrete and abstract words. In addition, the learners' attitudes towards implementing FLL were surveyed. To this end, drawing on the mixed-methods design, a group of 40 intermediate language learners (n=20 for each gender), within the age range of 12 to 16, was selected through convenience sampling from Parseh English Institute in Zanjan, Iran. In line with the quantitative strand, the results of the pre-knowledge test and learning test for experimental and control groups were compared to evaluate their achievement. After a two-week interval, the participants' scores were compared with the scores obtained in the retention test. After applying the treatment, a questionnaire about learners' attitudes considering FLL was distributed to the experimental group. A semi-structured interview was also conducted to triangulate the survey results. The data were analyzed using a paired samples t-test, ANCOVA, and descriptive statistics. The findings revealed that FLL improved the performance of the experimental group in learning and retention of concrete and abstract words. The results of the analysis, nevertheless, do not substantiate the role of gender as a moderating variable. The analysis of the questionnaire and the interview also suggested learners' favorable views regarding this kind of learning. Finally, it was concluded that FLL was efficiently applicable in English vocabulary didactics.

Keywords: Flipped Learning, Concrete Vocabulary, Abstract Vocabulary, Retention, Intermediate.

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Introduction

Lexical knowledge plays a crucial role in communicative competence and language learning. Therefore, learners must have numerous opportunities to hear, speak, read, and write in a variety of contexts. In this regard, contextualized vocabulary instruction is an effective strategy as it gives learners multiple chances to practice newly learned words through retrieving or recalling repeatedly. This generative opportunity allows learners to consolidate their past knowledge and enhance their language skills by making them use recently learned words in a suitable context and enabling them to communicate effectively (Mediha & Mede, 2014).

Not every learner, though, can succeed in vocabulary learning (Nation, 2022). This problem mostly stems from practicing improper teaching methods (Renandya et al., 2023). An effective solution for this issue is flipped learning, which creates a student-centered learning environment through collaboration. According to Hung (2017), flipped learning can be implemented to improve students' active learning. Flipped learning refers to an educational practice whereby the instructional content is delivered to learners before the class, and during class time, learners are involved in higher-order thinking activities or cooperative learning (Vitta & Al-Hoorie, 2023).

Many researchers have worked on different aspects and skills of flipped learning (Ahmad, 2016; Amiryousefi, 2017; Chen Hsieh et al., 2017; Phoeun & Sengsri, 2021; Vaezi et al., 2019; Webb & Doman, 2016). However, despite the increasing interest in FLL, limited studies have been dedicated to the extent to which students internalize words after implementing FLL (Jalili et al., 2020; Oh, 2017; Vitta & Al-Hoorie, 2023), leaving a critical gap concerning different types of vocabulary, i.e., concrete and abstract, didactics.

Literature Review

Flipped learning transforms the function of lectures and homework. In this inverted model, learners interact with educational materials before class, which subsequently allows them to deepen their understanding through collaborative activities during class time (Vitta & Al-Hoorie, 2023). It emphasizes students' active production after passive reception (Hung, 2017). Unlike non-language classrooms, in EFL classes, interaction can be interpreted from two angles: a) interaction with content and b) interaction via content (Jiang et al., 2022). Therefore, the duality of interaction is the distinguishing feature of FLL. According to Ahmed (2016), flipped learning is based on social constructivism principles as it emphasizes interpersonal communication and collaboration as an integral part of learning.

According to social constructivists, social interaction and cooperative learning are two key aspects of language teaching (Brown, 2014). The interaction hypothesis developed by Long highlights the role of interaction and input. He expanded Krashen's (1981) comprehensible input hypothesis by claiming that exposure to understandable input is not sufficient; another factor is required for learning a language effectively.

However, traditional methods of learning do not meet the needs of a more dynamic and interactive learning environment. This non-interactive instruction led to Ausubel's (1968) rote learning. It is characterized as acquiring material in separate and independent units. Contrary to that, Ausubel explains meaningful learning as associating new information with existing relevant components. This is in line with the concept put forth by Vygotsky (1978), which is the zone of proximal development (ZPD), defined as the gap between learners' current state of knowledge and their potential for development.

The revised version of Bloom's Cognitive Taxonomy (1956) suggests a hierarchical process starting from the simplest tasks to the most difficult ones, with lower-order cognitive work (e.g., remembering and understanding-based activities) at the bottom of the pyramid and higher-order cognitive work (e.g., creating and evaluating) on the top (Ahmed, 2016; Jiang et al., 2022). Active learning requires abundant opportunities for higher-order thinking skills to foster deep understanding. Flipped learning inverts the pyramid by placing higher-level cognitive tasks at the foundation (Vaezi et al., 2019). This inversion allows for more in-class opportunities for learners to apply, analyze, evaluate, and create.

Until recent years, vocabulary teaching has not gained enough attention, and contrary to syntax and pragmatics, many structural and behaviorist approaches (e.g., the Grammar-Translation Method and Audio-lingual Method) do not offer a clear-cut framework for teaching the lexical resources of a language. This was mainly due to the misconception that learners would naturally acquire L2 vocabulary, similar to L1 vocabulary, without explicit instruction (Schmitt & Schmitt, 2020). This is based on the misbelief that many educators think L2 vocabulary learning is simply based on a straightforward link between the form and meaning of a word and the memorization of its translation in their L1. However, as stated by Carroll (2008), word knowledge extends beyond the denotative meaning. Nation (2022) classifies aspects of knowing a word into three categories: form, meaning, and use. Form is defined as the word's pronunciation and spelling, meaning is related to its concepts and associations, and use is the implication of a word in speech in terms of its grammatical functions, collocations and constraints (Lessard-Clouston, 2021). Throughout TEFL, vocabulary categorization has mainly relied on words' tangibility. As concrete and abstract

words are processed differently, researchers need to consider the dichotomy in their investigations. According to [Morid et al. \(2020\)](#) and [Taylor et al. \(2019\)](#), the leading factor for the difference in processing words is the concreteness effect, as concrete words evoke multiple sensory experiences while abstract words primarily rely on verbal processing.

The existing body of research generally suggests a positive effect of FLL on language skills and language learners' attitudes. [Chen Hsieh et al. \(2017\)](#) investigated the effectiveness of FLL for teaching English idioms. Comparing the results of the pre-test and post-tests in flipped and conventional classes, they found that flipped classes achieved greater mean scores than traditional classes. Moreover, according to the quantitative study by [Vitta and Al-Hoorie \(2023\)](#) on Mobile-Assisted Language Learning (MALL), the lowest effect size on L2 outcomes measurement was allotted to vocabulary learning. In comparison to writing with 1.50, listening with 1.42, speaking with 1.14, and grammar with 1.1, vocabulary learning was found to have the lowest effect size of 0.25. Some research findings consistently indicate the advantage of concrete words over abstract words in the process of vocabulary retention ([Morid et al., 2020](#); [Taylor et al., 2019](#)).

The studies reviewed by the researchers have revealed that FLL is characterized by different perspectives and challenges for learners. Based on the relevant studies, learners participating in FLL classes predominantly displayed a high satisfaction level with FLL ([Hao, 2016](#); [Chen Hsieh et al., 2017](#); [Lee & Wallace, 2017](#); [Vaezi et al., 2019](#)). The analysis of qualitative data suggests that a large proportion of the learners prefer FLL over conventional methods as they can adjust the speed, review the material frequently, be active with in-class activities, receive more feedback from their teacher and classmates, and feel more relaxed and confident ([Lee & Wallace, 2017](#); [Vaezi et al., 2019](#)). [Vaezi et al. \(2019\)](#) researched 80 Iranian advanced EFL students. The result of the Likert scale questionnaire showed that over 50% of students strongly agreed or agreed with the implementation of FLL. The students perceived FLL as beneficial for improving their language skills, particularly their speaking confidence. Despite the positive feedback from many learners, a minor group of learners expressed a negative attitude towards FLL, which stems from increased workload outside of class time and lack of direct support from the teacher while encountering pre-class materials and activities ([Aghaei et al., 2019](#); [Chen Hsieh et al., 2017](#); [Lee & Wallace, 2017](#)). The study conducted by [Leis \(2022\)](#) suggested that although students with high linguistic self-confidence found videos useful, they preferred textbook study without scaffolding. Conversely, students with a lower level of linguistic self-confidence valued videos for better comprehension and in-class active participation.

Based on the theoretical and empirical foundations examined in this section, limited attention has been given to the impact of FLL on vocabulary learning and retention, particularly in the context of concrete and abstract words. Therefore, this study aims to optimize vocabulary instruction by investigating the relationship between FLL and learning and retention of concrete and abstract words by Iranian EFL learners with intermediate (B1) proficiency level, with due attention to their attitudes.

The objective of this study is to provide insights into the following four research questions:

- 1) Does FLL result in greater scores for immediate learning and delayed retention for both concrete and abstract words compared to conventional learning without pre-class activities?
- 2) Do concrete and abstract words differ in learning and retention within the context of FLL compared to conventional learning without pre-class activities?
- 3) Does gender play a moderating role in this research context?
- 4) What are the participants' attitudes towards implementing flipped learning for learning and retention of concrete and abstract words?

Methodology

Design

This mixed-methods study is based on a quasi-experimental design and triangulation of findings through interviews. By collecting both quantitative data (pre-knowledge test, learning test, retention test, and attitude questionnaire) and qualitative data (interview), the study can capture a picture of vocabulary learning/ retention and the students' experience of FLL.

Participants and the Learning Context

A total of 40 participants (male=20, female=20) ranging in age from 12 to 16 were selected according to their score in the Oxford Quick Placement Test (OQPT) to ensure that they fall within the category of intermediate (B1) proficiency level. The test was administered among language learners attending General English Courses at Parseh English Institute in Zanjan, Iran.

Instruments

Tests

The OQPT was utilized in the early stage to assess the participants' proficiency level in the target language. The score range of this test is from 0 to 60, and referring to the Common

European Framework of Reference (CEFR), learners obtaining scores between 30 and 39 are considered B1, or intermediate learners. Additionally, a study-specified test adapted from the TahlilGaran eLearning Center was employed at different stages to determine students' knowledge of vocabulary terms presented in the *Oxford Word Skills: Intermediate Vocabulary* (2nd ed.) textbook. To ensure the test's suitability for the study context, questions were selectively drawn from unit-specific content provided on the online resource. Furthermore, for some items, the original multiple-choice format was changed to meet the requirements of the study. The pre-knowledge test was implemented to determine a baseline for comparison, and then the learning test, mirroring the pre-knowledge test, was run. The retention test, which was the same as the pre-knowledge test, was conducted in a two-week interval. These tests were identical, with 25 concrete and 25 abstract items encompassing matching, fill-in-the-blank, and multiple-choice questions (see [Appendix A](#)). The participants were expected to identify definitions or appropriate usage of the words. Each correct response was awarded one point. The identical test formats maintain internal validity and ensure that any change observed in participants' performance can be attributed to the implementation of the approach. The tests used in the present study had been validated by the experts (faculty members of the English department at the University of Zanjan). The reliability of the tests was established via Kuder Richardson ($r=.897$).

The Attitude Questionnaire

An attitude questionnaire developed by [Vaezi et al. \(2019\)](#) was distributed to elicit information about the participants' perceptions of the FLL. The questions were in the participants' L1. It includes 13 items employing a 5-point Likert scale to gather data, and the participants were expected to select one of the options from 1 (strongly disagree) to 5 (strongly agree) (see [Appendix B](#)). According to [Vaezi \(2019\)](#), the questionnaire had been previously validated via Confirmatory Factor Analyses and Exploratory Factor Analyses. To ensure the clarity of the questionnaire, two experienced faculty members of the English department at the University of Zanjan checked it. The reliability of the questionnaire was checked through Cronbach's alpha formulas ($r=.739$).

Interview

A semi-structured interview comprising eight open-ended items adapted from [Vaezi et al. \(2019\)](#) was conducted to delve deeper into the participants' experiences. To enhance clarity and accuracy, the interview questions were translated into Persian, the native language of the

respondents. The quality of the translation was approved by an expert in translation studies (see [Appendix C](#)).

Data Collection Procedure

To conduct the present study, a total of 40 male and female intermediate (B1) language learners attending General English courses at Parseh English Institute in Zanjan, Iran, were selected. One control group and one experimental group, each comprising 20 participants, were formed through random assignment. It is worth mentioning that before treatment, the pre-knowledge test introduced earlier was administered to make sure that the participants did not differ significantly regarding their familiarity with the specified words before the application of the treatment.

Both groups underwent 12 sessions of one-hour instruction, three sessions per week. In each session, the same topics were introduced to the groups from *Oxford Word Skills: Intermediate Vocabulary* (2nd ed.) Each session covered a combination of both concrete and abstract words. After treatment, the learning test was applied. To evaluate the long-term retention of the target words, the retention test was given within a two-week interval after the treatment.

Participants in the treatment group were required to read the words in advance and prepare themselves according to the instructions given by the teacher, and during class sessions, they were supposed to actively participate in discussions and activities about the subject matter and complete exercises provided in the assigned textbook; however, the control group's class sessions were held conventionally as new words were introduced to participants during the class, and subsequently, they were supposed to complete the exercises and practice new words at home as their homework.

After completing the treatment, this study utilized the questionnaire to gather insight into learners' perceptions of FLL. In the last part of the study, seven participants of the experimental group were interviewed to capture a more comprehensive understanding of the students' experiences. The questions are based on four main themes: 1) Technology, 2) Teachers' feedback, 3) Opportunities for learners' interaction, and 4) Learners' self-confidence. All interviews were audio-recorded with participants' consent for subsequent analysis.

Figure 1 visually presents the mixed-methods design. The left side of the figure illustrates the quantitative aspects of the study. Conversely, the right side outlines the qualitative strand. While data for each strand were collected and analyzed independently,

their findings were integrated during the discussion, interpretation, and conclusion phases of the study.

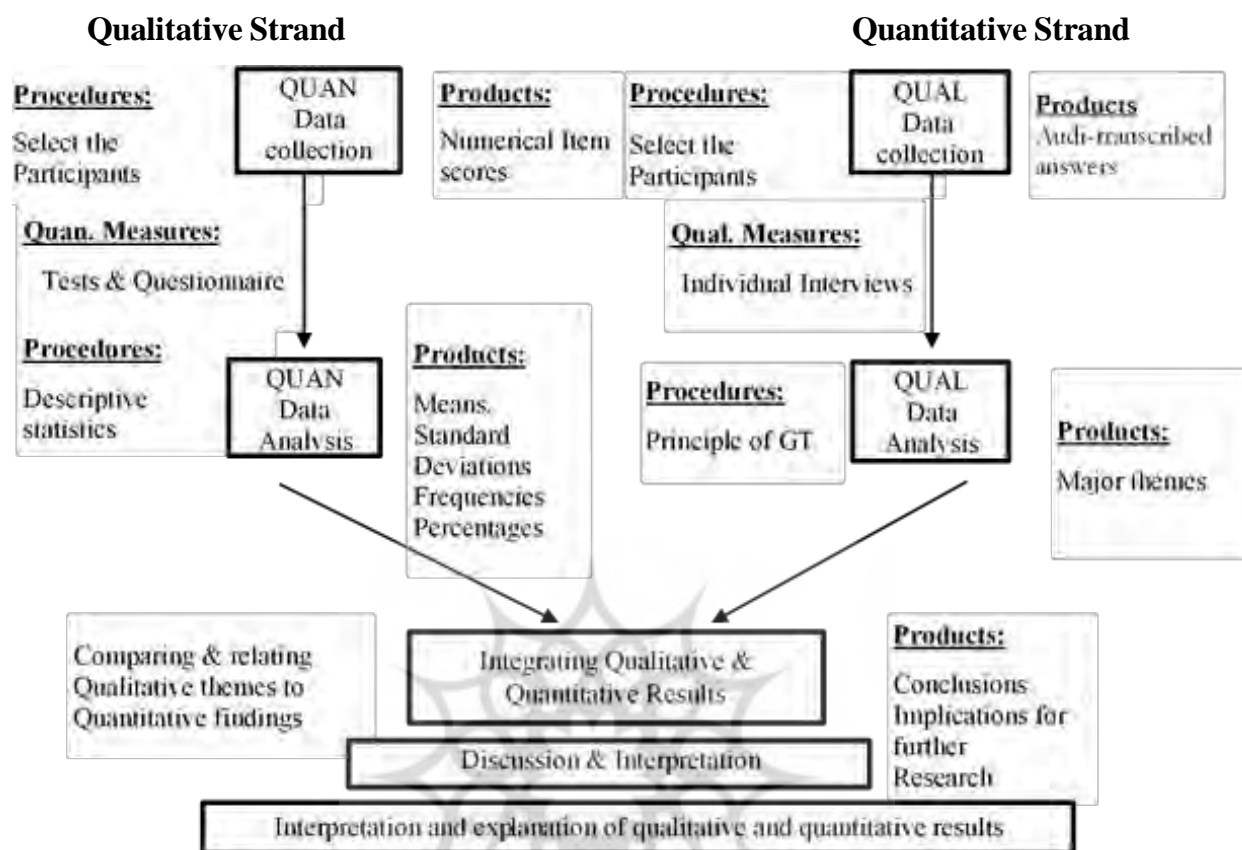


Figure 1. Schematic Representation of Research Methodology

Data Analysis

To compare the effectiveness of FLL with conventional learning on immediate learning and delayed retention for both concrete and abstract words, the raw data collected from pre-knowledge tests, learning tests, and retention tests were analyzed. Each correct answer on the pre-knowledge tests, learning tests, and retention tests was assigned a value of one point. The calculated raw scores were entered into a computer, and the statistical analysis was run by SPSS software (version 27). Analysis of covariance (ANCOVA) was applied to measure learning, and repeated ANOVA was used to measure retention.

To investigate the difference between learning and retention of concrete and abstract words, a paired samples t-test was utilized. The mean scores obtained from the concrete word tests administered to each group were compared with the mean scores obtained from abstract word tests of the same group.

The moderating role of gender on participants' performance was explored through an analysis of ANCOVA on the mean scores of two groups of male and female participants in both groups.

Regarding the participants' attitudes towards the FLL, the data gathered through the questionnaire, descriptive statistics, frequencies, and percentages were analyzed. To interpret the qualitative data from interviews, first, the recorded interviews were transcribed, then encoded with similar themes and concepts, and finally categorized. This qualitative data analysis method relies on the principles of grounded theory (GT)

Results

The First Research Question

The results in Tables 1 and 2 present descriptive statistics on the pre-knowledge test, learning test, and retention test for the performance of both groups in learning and retaining concrete and abstract words, respectively. The scores range from 0 to 25. The results indicate that the experimental group obtained a greater mean score in the learning test and retention test. Moreover, a smaller standard deviation for the performance of the experimental group on the learning test and retention test indicates a more consistent treatment effect.

Table 1. Descriptive Statistics: Pre-knowledge Test, Learning Test, and Retention test of Concrete Words

	Experimental group		Control group	
	Mean	Std. Deviation	Mean	Std. Deviation
Pre-knowledge test	3.600	1.535	4.200	1.735
Learning test	24.150	1.137	23.100	1.944
Retention test	22.600	1.188	19.450	2.416

Table 2. Descriptive Statistics: Pre-knowledge test, Learning Test, and Retention Test of Abstract Words

	Experimental group		Control group	
	Mean	Std. Deviation	Mean	Std. Deviation
Pre-knowledge test	2.050	1.234	1.850	1.387
Learning test	21.700	2.755	18.150	2.560
Retention test	18.350	2.434	11.550	2.817

Through analysis of ANCOVA, the effect of the intervention, i.e., FLL, on concrete vocabulary learning was significant ($\text{sig}=.013<.05$). This implies a significant mean score difference in concrete words between the experimental and control groups on the learning test. Based on the mean scores gathered from the learning test, FLL had an impact on increasing concrete word scores compared to conventional methods. However, the effect size of the intervention was 0.155, suggesting that while the learning test scores in the experimental group increased significantly, the effect size was not substantial. It leads to the conclusion that the experimental group demonstrated a slightly better performance than the control group in learning concrete words.

In contrast, the results of the ANCOVA analysis for abstract vocabulary learning showed the effect of the intervention, e.g., FLL, on abstract words was significant ($\text{sig}=.001<.05$). This implies a significant difference in the mean scores of abstract words between the experimental and control groups' learning test scores. FLL had a significant impact on increasing abstract vocabulary scores compared to conventional methods. The effect size of the intervention was 0.316, which is considered a substantial effect. The findings suggest that after receiving the treatment, the experimental group demonstrated a markedly higher level of learning abstract words.

To measure participants' retention after two weeks, the retention test was administered. Repeated ANOVA was used to examine the retention of both concrete and abstract words.

For concrete words, it is observed that the effect of the intervention was significant ($\text{sig}=.001<.05$), meaning that FLL had a significant impact on concrete word scores over time. According to the mean scores of the learning test and retention test, the observed difference was noticeable in word retention when comparing the experimental and control groups ($\text{sig}=.001<.05$). As evidenced by the scores, the experimental group achieved better results than the control group in retaining concrete words and experienced a minor decline in retention during the retention test. It can be inferred that using FLL had a statistically significant and positive effect on participants' performance in retaining concrete words.

Similarly, for abstract words, repeated ANOVA indicated a considerable effect of the intervention ($\text{sig}=.001<.05$). This finding suggests that FLL had a significant impact on retaining abstract vocabulary scores over time. Furthermore, there was a significant main effect of the group ($\text{sig}=.001<.05$), indicating a notable difference in vocabulary retention between the two groups. It can be inferred that using FLL had a statistically significant and positive influence on participants' performance in retaining abstract words.

The Second Research Question

In Tables 3 and 4, the results of the Paired Samples t-tests indicated considerable differences in the learning and retention of concrete and abstract words. The difference between the mean scores of learning concrete and abstract words among participants of the experimental group ($t=4.455$, $p<.05$) was significant. Similar to the experimental group, there was a significant difference between the mean scores for learning concrete and abstract words ($t=7.559$, $p<0.05$).

Moreover, in the experimental group, a significant difference was found between the mean scores for retaining abstract and concrete words ($t=7.164$, $p<.05$). A significant difference was found between the mean scores for retaining concrete and abstract words ($t=10.841$, $p<0.05$). These findings indicate that, within both groups, participants performed significantly better on tasks involving concrete words both in terms of initial learning and subsequent retention.

Table 3. The Results of Paired Samples T-tests for the Performance of the Experimental Group

Period	Abstract words	Concrete words	Mean difference	t-value	p-value
Learning	21/700±2/755	24/150±1/137	2/450±2/460	4/455	0/001
Retention	18/350±2/434	22/600±1/188	4/250±2/653	7/164	0/001

Table 4. The Results of Paired Samples T-tests for the Performance of the Control Group

Period	Abstract words	Concrete words	Mean difference	t-value	p-value
Learning	18/150±2/560	23/100±1/944	4/950±2/928	7/559	0/001
Retention	11/550±2/819	19/450±2/416	7/900±3/259	10/841	0/001

The Third Research Question

The third research question examined whether gender acts as a moderator for vocabulary performance in the FLL context. Based on Table 5, analysis of covariance indicates that gender does not have any significant effect on participants' performance ($\text{Sig}=.889>.05$). Therefore, gender is not a moderating factor in the total score of learning and retention of vocabulary in both groups.

Table 5. The Results of the Covariance Analysis for Gender as a Moderator Variable

Source	SS	DF	MS	F	Sig	η^2
intercept	10488.890	1	10488.890	875.311	0.001	
pretest	32.794	1	32.794	2.737	0.107	
group	223.772	1	223.772	18.674	0.001	
gender	0.236	1	0.236	0.020	0.889	
gender * group	0.211	1	0.211	0.018	0.895	
error	419.406	35	11.983			0.001
total	76528.000	40				

This means that the impact of Flipped Learning on vocabulary performance was largely consistent for both male and female participants in this study, and the effectiveness of the teaching method did not significantly differ across gender groups.

The Fourth Research Question

To investigate the learners' attitudes towards FLL, responses provided by the participants to the questionnaire were examined through frequency analysis (Table 6), the results of which were summarized in the following paragraphs.

Table 6. Frequencies of the Students' Responses to the Questionnaire

Questions	Completely Disagree		Disagree		Neutral		Agree		Completely Agree	
	n	%	n	%	n	%	n	%	n	%
Question 1	0	0	0	0	0	0	7	35.0	13	65.0
Question 2	0	0	2	10.0	7	35.0	5	25.0	6	30.0
Question 3	2	10.0	2	10.0	4	20.0	6	30.0	6	30.0
Question 4	3	15.0	4	20.0	3	25.0	8	40.0	2	10.0
Question 5	1	5.0	4	20.0	2	10.0	6	30.0	7	35.0
Question 6	2	10.0	0	0	5	25.0	7	35.0	6	30.0
Question 7	0	0	0	0	3	15.5	5	25.0	12	60.0
Question 8	3	15.0	3	15.0	4	20.0	5	25.0	5	25.0
Question 9	0	0	0	0	4	20.0	8	40.0	8	40.0
Question 10	2	10.0	0	0	3	15.0	11	55.0	4	20.0
Question 11	0	0	2	10.0	2	10.0	7	35.0	9	45.0
Question 12	0	0	2	10.0	1	5.0	9	45.0	8	40.0
Question 13	2	10.0	3	15.0	1	5.0	6	30.0	8	40.0

According to items 2, 5, 10, and 12, FLL had a significantly positive effect on “interaction with other learners.” This indicates that participants perceive that FLL is useful in improving their communication skills, connecting and collaborating with others, and participating in the learning process.

According to items 1, 9, and 11, participants had significantly positive attitudes towards “using audio-visual and prepared materials.” This indicates that participants agreed on the positive and facilitating role of technology in the context of FLL.

According to items 3, 7, and 13, participants had significantly positive attitudes towards “independent learning and problem-solving outside the classroom.” This means that participants demonstrated a preference for gaining independence in learning English vocabulary and receiving feedback immediately from the teacher.

However, according to items 4, 6, and 8, some inconsistencies were observed in terms of the role of FLL in “increasing learners’ confidence”. Participants stated that FLL did not make them more confident in learning English vocabulary.

Overall, the analysis presented in Table 6 demonstrated that participants expressed favorable views on FLL. However, the hypothesis indicators for “increased learners’ confidence” did not yield statistically significant results, which could be due to participants’ unwillingness to communicate with strangers in a group and reluctance to present their projects in front of the whole class, which stems from their shyness that hinders them from being in the spotlight.

Analysis of Interview Responses

In response to the first question, it was observed that all seven participants preferred flipped learning. Their main reason was to learn at a suitable pace and time and to have the opportunity to review and revisit the content. Another point favored by the participants was the student-centered nature and the interactive atmosphere of FLL classes, which contribute to peer learning and learning based on the learners’ style.

In response to the second question, they asserted that learning through FLL enables them to direct their learning in concordance with their personal schedule and learning style, and as a consequence, it increases their autonomy. In addition, they believed that they had the chance to be exposed to the words in various contexts that strengthened their deep learning. Moreover, they mentioned that they received more feedback from their teacher and peers. However, three of them argued that it was hard for them to communicate with new people efficiently, and instead of in-class group work, they preferred to do activities on their own.

They pointed out that sometimes watching videos was boring for them, and it takes time to regulate themselves to this way of learning.

In response to the third question, all participants showed their 100% agreement. They replied that instead of learning just one word in a specific context, they were faced with it in different contexts. Because of the interactive nature of FLL, they learn collocations and grammatical rules.

In response to the fourth question, one of the participants stated: *“After a while, I found myself as a learner who is in the role of a teacher, as I carefully listen to the classmates to answer their questions and give them feedback and try to support my teammates more than ever.”* And another one mentioned: *“in the flipped classes I feel that I am more aware of the process of learning”*. As a result, the participants consider themselves as hardworking learners who listen actively to others. Moreover, they believed collaborative teamwork made them communicate more with others.

In response to the fifth question, they pointed out that, contrary to conventional vocabulary learning classes, which were somehow boring, their new experience was more engaging. Moreover, they agreed that in the FLL class, they had more opportunities to ask their questions and get responses from both the teacher and peers, which made the answer clear for them.

In response to the sixth question, they all expressed a positive attitude towards using technology in the process of learning. Their main reason for showing agreement towards using technology was that being exposed to multimodal content beyond the book was more attractive for them. The other reason was that they did not have to check the suprasegmental features of the words separately, as they could hear the word at the same time as they learned it.

In response to the seventh question, they mentioned they prefer individual learning as it takes a while to get accustomed to this way of learning. As a result of over-reliance on others' performance at home, team members might not get on with each other. One of the participants added: *“Iranian high school students are overwhelmed with school homework, therefore during summer it would be feasible and fun, but in school time we do not have enough time to watch videos carefully”*.

In response to the last question, which sought the participants' further comments about FLL, a participant mentioned that for some subjects, like English or literature, flipped learning would be applicable, but for subjects like math or chemistry, a direct explanation from the teacher is required.

According to the responses of participants gathered through interview questions and then analyzed by using GT, 3 components and 14 dimensions were derived from participants' experiences in FLL classrooms, which are indicated in Table 7.

Table 7. The Main Themes (Dimensions) and Components of the Benefits of Implementing FLL

The Main Themes of the Answers to Interview Questions (Dimensions)	Components
Effectiveness of teaching	Understanding different aspects of a word
	Maximized comprehension of the context
	Learning deeply instead of memorizing
	Meeting learners' educational needs
	Enhancing the quality of teaching
	Enriching materials
	Enhancing class time management
Improving learning skills and ability	Being more eager to learn
	Removing major mistakes
	Developing self-directed learning
	Improving communication
Motivation and desire to learn	Improving skills
	Solving peers' learning problems
	Being motivated

Finally, after analyzing the responses to the questionnaire and interview, it can be concluded that the participants in the experimental group had a positive experience in FLL English classes, as vocabulary didactics were positive.

Discussion

As the first research question, the study examined the learning and retention of concrete and abstract terms. The data analysis for concrete and abstract words indicated an advantage for the experimental group, as it obtained a higher mean score on the learning test and retention test. In other words, statistical analysis revealed a significant positive correlation between implementing FLL and the participants' performance in learning and retention of concrete and abstract words.

The findings from the first research question correspond with the findings in the earlier research. The research conducted by Kang (2015) indicates that participants improved their

vocabulary knowledge after applying FLL. Moreover, by examining the effect of flipped classrooms on English-speaking skills, the findings of [Phoeun and Sengsri \(2021\)](#) provide supporting evidence for the findings of this study. They found that the mean score for grammar and vocabulary in the post-test was greater than the scores in the pre-test. This suggests that FLL can enhance vocabulary learning, which stems from more interaction with teachers and peers and getting learners involved in the process of deep learning. However, the magnitude of effect size may vary according to the research context, target words, and study design, as the findings of the meta-analysis conducted by [Vitta and Al-Hoorie \(2023\)](#) highlight that, though with a near-zero effect size, FLL had a statistically significant effect for vocabulary.

According to the data collected for the second research question, both the experimental and control groups obtained higher mean scores for concrete word items. This means that, regardless of teaching method, concrete words can be better learned and retained compared to abstract words. Aligning with the findings of this study, earlier research findings indicate that concrete words enhance vocabulary processing compared to abstract words, which can be explained by the concreteness effect ([Morid et al., 2020](#); [Taylor et al., 2019](#)). Therefore, as a result of their tangibility, concrete words can be processed, retrieved, and stored easily in learners' memories.

The findings of the third research question did not reveal a significant gender-based difference in the participants' performance. Therefore, it cannot be considered a moderating factor in this research. Consistent with this finding is the result of [Llach and Gallego \(2012\)](#), which shows that gender does not affect the obtained vocabulary size. However, [Hao \(2016\)](#) found that the readiness level of male participants was higher than that of their female counterparts in flipped classrooms, which was mainly due to higher communication self-efficacy. This factor, nevertheless, may vary according to different research contexts, instructional environments, learning strategies, and learners' characteristics.

Taking the attitudes about implementing flipped learning into account, the findings of the fourth research question showed that participants considered FLL as a satisfactory experience. This can be supported by the previous studies ([Aghaei et al., 2019](#); [Doman & Webb, 2017](#); [Vaezi et al., 2019](#)). However, the findings of this study about the participants' confidence contradict the conclusion made by [Chen Hsieh et al. \(2017\)](#), who reported improved confidence in an online FFL classroom. This discrepancy highlights the influence of instructional modality on participants' confidence level. Moreover, [Abdullah et al. \(2021\)](#) observed an increase in confidence level in an EFL classroom at a university in Oman, which

could be attributed to cultural differences in how confidence is defined and expressed in a society, as well as demographic features of participants, where there might be higher peer pressure and anxiety level among younger learners.

Conclusion

The purpose of this study was to determine the effectiveness of FLL on Iranian intermediate EFL learners' performance in vocabulary learning and retention, focusing on concrete versus abstract word types. Furthermore, it investigated the moderating role of gender in the FLL context and explored participants' attitudes towards FLL implementation. The results of the comparison between the mean scores of the learning test and retention test of the experimental and control group indicated that implementing FLL effectively enhanced the participants' learning and retention of concrete and abstract words. Qualitative findings indicated that participants perceived FLL as a satisfactory experience in their English learning journey that helps them improve vocabulary as well as other language-related skills. However, some of them believed that flipped learning did not affect their stress and anxiety levels, which might be due to their natural shyness when communicating with strangers.

The study faces some limitations and delimitations, including a lack of random sampling and a small number of participants. A further limitation is the socioeconomic homogeneity of the participants and participants' adequate access to technology devices and their technological proficiency, which is due to their age range. The interview was conducted on a volunteer basis with the participants who were willing and available in the immediate context. Finally, the focus on vocabulary didactics limited the scope of the study in the field of language teaching.

The outcomes of this research seem to be beneficial in the field of English didactics for both teachers and students. It helps teachers redesign their lesson plans to enhance immediate learning and delayed retention of vocabulary. Moreover, they can dedicate lecture time to providing feedback to learners and enhancing their learning quality. Additionally, this study hopes to encourage learners to participate more in hands-on activities and foster their deep learning. In addition to teachers and learners, material developers could benefit from producing instructional materials that incorporate a variety of in-class activities based on learners' different proficiency levels and in line with digital resources for home-learning activities.

For further studies, it is suggested to use different contexts, proficiency levels, and age ranges to elucidate the relationship between each of these variables and FLL. In addition, this

study can be carried out in a community with a larger sample size using a random sampling method. Furthermore, researchers may examine different modes of technology integration. A further study could be conducted on the impact of flipped learning on other language-related skills. Moreover, it is recommended that teachers' attitudes towards implementing FLL in their classes be elicited, and a comparison between teachers' and learners' perceptions of the flipped classroom should be made.

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The authors declare that they have no conflicts of interest.

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Appendix A: Pre-knowledge Test, Learning Test, and Retention Test

Test duration: 60 minutes Vocabulary Assessment for Oxford Word Skills Intermediate level

Questions are selected and adapted from materials developed by TahlilGaran eLearning Center led by Mr. Alireza Motamed.

1. Choose the best option.

1. Make sure that you have the ability to do things well or deal with situations successfully.

- a) energetic ☐ b) practical ☐ c) confident ☐

2. A strong human feeling such as love, hate, or anger.

- a) emotion ☐ b) nervousness ☐ c) occasion ☐

3. The brother of your husband or wife.

- a) sibling ☐ b) twin ☐ c) brother-in-law ☐

4. A situation in which people have the same rights, advantages, etc.

- a) vary ☐ b) equality ☐ c) affair ☐

5. A large natural hole in the side of a cliff or hill, or under the ground.

- a) beach ☐ b) cliff ☐ c) cave ☐

6. A vehicle that is able to travel in space.

- a) spacecraft ☐ b) explorer ☐ c) scientist ☐

7. A very large amount of water that covers an area that is usually dry.

- a) flood ☐ b) drought ☐ c) hurricane ☐

8. A period of time such as a few weeks when the weather is much hotter than usual.

- a) pollution ☐ b) heat wave ☐ c) melt ☐

9. A piece of equipment for controlling the flow of water, gas, etc. from a pipe or container.

- a) energy ☐ b) tap ☐ c) recycling bin ☐

10. One of the hard parts that together form the frame of a human, animal, or fish body.

- a) sting ☐ b) bone ☐ c) bite ☐

11. More or less than a number or amount.

- a) mostly ☐ b) approximately ☐ c) slightly ☐

12. In a way that is easy to see, hear, or understand.

- a) secretly ☐ b) successfully ☐ c) clearly ☐

13. A type of strong cotton cloth used especially to make jeans.

- a) wool ☐ b) denim ☐ c) casual ☐

14. Money that you gain by selling things or doing business, after your costs have been paid.

- a) trade ☐ b) profit ☐ c) quality ☐

15. A low fast car, often with a roof that can be folded back or removed.

- a) sports car ☐ b) emergency services ☐ c) ambulance ☐

16. An official document or card that says that you are legally allowed to drive.

- a) driving license ☐ b) insurance ☐ c) driving lesson ☐

17. To regularly travel a long distance to get to work.

- a) hold-up ☐ b) commute ☐ c) leave ☐

38. A place where people can stay and eat fairly cheaply.

- a) Seaside ☐ b) sunbathe ☐ c) hostel ☐

19. Used for saying what has already happened at the time that something else happens.

- a) meanwhile ☐ b) on time ☐ c) by the time ☐

20. Confident and sure, without any doubts.

- a) frightened ☐ b) worried ☐ c) certain ☐

21. An area made for playing games such as tennis is called

- a) club ☐ b) ground ☐ c) court ☐

22. Not honest, and so deceiving or cheating people.

- a) polite ☐ b) dishonest ☐ c) disorganized ☐

23. A short written document that lists your education and previous jobs, which you send to employers when you are looking for a job.

- a) curriculum ☐ b) diploma ☐ c) cv ☐

24. A machine that takes people and goods from one level to another in a building.

- a) lift ☐ b) underground ☐ c) lorry ☐

25. To cook something using dry heat, in an oven.

- a) fry ☐ b) bake ☐ c) boil ☐

26. An arrangement that you make in advance to buy a ticket to travel somewhere, go to the theatre, etc.

- a) make sure ☐ b) deal with ☐ c) booking ☐

Score/26 (1 Point each)

2. Match. (There are 4 extra items)

1. Land along the side of a river or lake (.....)	a) consider
2. Best, most important, or most successful (.....)	b) assignment
3. To think about something carefully, especially before making a choice or decision (.....)	c) run(s)
4. To state that something is true, even though it has not been proved (.....)	d) leading
5. Things such as films, television, performances, etc. that are intended to amuse or interest people (.....)	e) entertainment
6. If a computer program, it operates (.....)	f) campus
7. The land and buildings of a university or college, including the buildings where students live (.....)	g) professional
8. A piece of work that a student is asked to do (.....)	h) bank
9. A special room or building in which a scientist does tests or prepares substances (.....)	i) claim
10. Bread that is shaped and baked in one piece and can be cut into slices (.....)	j) celebration
	k) laboratory
	l) protest
	J) loaf
	K) instruction

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Score/10 (1 Point each)

3. Fill in the blanks with only one word that best completes the sentences and begins with the given initial letters.

1. B..... clothes are big and do not fit tightly on your body.
2. Fresh food has recently been picked or prepared and is not f..... or preserved.
3. To hurt yourself or someone else with fire or something hot is called b.....
4. A hard black mineral which is dug out of the ground and burnt to produce heat is called c.....
5. Something that is a..... is able to be used or can easily be bought or found.
6. A f..... situation, system, way of treating people, or judgment seems reasonable, acceptable, and right.
7. C..... f..... means to look after someone who is not able to look after him/herself.
8. L..... is one of the flat green parts of a plant that are joined to its stem or branches.
9. A..... means to respect and like someone because they have done something that you think is good.
10. Someone whose job is to make judgments about the good and bad qualities of art, music, films, etc. is called c.....
11. C.....the process by which people exchange information or express their thoughts and feelings.
12. To write to or telephone someone is called c.....
13. D..... is a dry powder consisting of extremely small bits of dirt that are in buildings on furniture, floors, etc. if they are not kept clean.
14. An arrangement or promise to do something, made by two or more people, companies, organizations, etc. is called a.....

Score/14 (1 Point each)

Good luck!

Appendix B: Questionnaire regarding Learners' Attitude towards Implementing FLL

ردیف	کاملاً مخالفم	کاملاً موافقم	ایده ای ندارم	مخالفم	موافقم	کاملاً موافقم
استفاده از فایل‌های صوتی تصویری مطالب و نرم افزارهای آموزشی زبان انگلیسی من را تقویت می کند.	1	2	3	4	5	
رویکرد آموزش معکوس کیفیت مهارت‌های ارتباطی من را ارتقا می دهد.	1	2	3	4	5	
با استفاده از رویکرد آموزش معکوس در خارج از کلاس درس می آموزم و در داخل کلاس اشکالاتم را برطرف می‌کنم	1	2	3	4	5	
در کلاس آموزش معکوس احساس آرامش بیشتری در حین صحبت کردن به زبان انگلیسی دارم	1	2	3	4	5	
در مقایسه با کلاس های دیگر رویکرد آموزش معکوس فرصت بیشتری برای ارتباط و تشریک مساعی با دیگر زبان آموزان در اختیار من قرار میدهد.	1	2	3	4	5	
در کلاس معکوس اعتماد به نفس بیشتری برای صحبت کردن به زبان انگلیسی دارم	1	2	3	4	5	
با استفاده از آموزش مستقیم و توضیح معلم در کلاس درس بیشتر می آموزم	1	2	3	4	5	
با استفاده از رویکرد آموزش معکوس اعتماد به نفس بیشتری در حین یادگیری دارم	1	2	3	4	5	
رویکرد آموزش معکوس فایل‌های صوتی فیلمها، مطالب و نرم افزارهای آموزشی به تقویت زبان انگلیسی من کمک میکند	1	2	3	4	5	
در کلاس معکوس بیش از پیش در فرآیند یادگیری مشارکت داده می شوم.	1	2	3	4	5	

استفاده از فایل‌های صوتی فیلمها مطالب و نرم افزارهای					
5	4	3	2	1	آموزشی از پیش تهیه شده به تقویت زبان انگلیسی من کمک میکند
کلاس آموزش معکوس فرصت بیشتری برای ارتباط با					
5	4	3	2	1	دیگر زبان آموزان را به من میدهد
ترجیح میدهم فعالیتهای یادگیری را در کلاس انجام داده					
5	4	3	2	1	و بازخورد آن را به سرعت از معلم دریافت کنم



Appendix C: Semi-structured Interview regarding Learners' Attitude towards Implementing FLL

1. Do you prefer conventional learning or flipped learning? Why?
2. What are the advantages and disadvantages of the flipped classroom approach? Please elaborate on them?
3. Does the flipped classroom improve your general English? In what way?
4. How do you describe yourself as a student in a flipped classroom?
5. How do you compare your flipped classroom with your conventional classroom? How similar/different are they?
6. Is technology helpful in this class? How?
7. Do you think the Flipped Classroom Approach is applicable in the context of Iran? Why/Why not?
8. Please add any other comments about flipped classroom app

