Investigating the impact of Using Different Forms of Picture Presentation on EFL Learners' Phrasal Verb Learning and Retention

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Abstract

Informed by the Dual Coding Theory, the present study investigated the effect of two picture presentation modes, namely still-picture versus motion-picture presentation, on the learning and retention of vocabulary items. To this end, we have selected 90 intermediates Iranian EFL learners and randomly assigned them to two experimental groups and a control group. The experimental groups underwent a particular picture presentation mode while the control group followed the conventional vocabulary learning instruction in place at their language institute. Results of the repeated measures ANCOVA revealed that there was a statistically significant difference in terms of the picture presentation modality used while teaching vocabulary items and that the difference led to a statistically significant effect on the participants' learning and retention of vocabulary items. In addition, the results of the pairwise comparisons revealed that the motion-picture presentation of phrasal verbs was more effective in terms of vocabulary learning and retention compared with the other two treatments, namely still-picture presentation and regular presentation of phrasal verbs. Collectively, our results revealed that pictorial presentation and the motion picture mode are both effective vocabulary instruction methods in terms of vocabulary learning and word retention. Our findings lend support to the previous line of research, revealing that the use of visuals is conducive to building a better mental image, thus improving the EFL learners' vocabulary learning in the short term and retention in their long-term memories. The implications and direction for future research are also provided at the very end.

1. INTRODUCTION

Developing vocabulary knowledge is considered a crucial element of any endeavor in acquiring a second or foreign language. The absence of vocabulary knowledge can render it exceedingly challenging to interpret others' messages or articulate one's own thoughts and concepts in any language. Thus, vocabulary knowledge is important in conveying what we mean, and it refers to the knowledge and appropriate use of words in a given context (SoHee, 2019). Given the extensive range of words necessary to be learned in acquiring a new language and the limited exposure of learners in a foreign language learning environment where English is not spoken outside EFL

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classes, one could posit that vocabulary learning poses a formidable challenge for language learners.

This challenge may intensify when dealing with phrasal verbs, which have been indicated to pose particular difficulties for language learners due to their abundance and the seemingly arbitrary nature of the combination of verbs and particles (Birjandi et al., 2015). In this regard, language teachers and learners have consistently displayed a strong interest in identifying the most effective methods for teaching and learning phrasal verbs, including the presentation of vocabulary items through diverse input forms like various media types, such as video, picture, audio, text, etc. (e.g., (Al-Seghayer, 2001; SoHee, 2019;Yeh and Wang, 2003). However, there has been a longstanding debate on the efficacy of providing EFL learners with diverse input forms and whether a single or a blend of them is more advantageous in the language learning process (Al-Seghayer, 2001; Birjandi et al., 2015; SoHee 2019).

In this regard, pictures and videos are classified as visual input, while audio and texts are categorized as verbal input (Paivio, 1969). However, despite numerous attempts to explore the impact of different media types on incidental learning of phrasal verbs through diverse modalities, the comparison between the outcomes of still and motion pictures remains an area of interest that has produced somewhat mixed and inconclusive findings (Al-Seghayer, 2001; SoHee, 2019). In particular, the integration of motion pictures as an educational tool has been demonstrated to boost students' motivation to learn (Harmer, 2001).

To this end, in light of the limited research examining the impact of two distinct modes of vocabulary presentation on phrasal verb learning and retention and the mixed nature of the existing findings in this realm (Birjandi et al., 2015; SoHee (2019) two media modalities are under scrutiny herein: still and motion pictures. Thus, the purpose of the present study is to delve into the more prominent modality of input for phrasal verbs by investigating the effects of using different forms of picture presentation (i.e., still- versus motion-picture presentation) on the learning and retention of phrasal verbs by Iranian intermediate EFL learners.

2. LITERATURE REVIEW

Vocabulary learning

Vocabulary plays a significant role in language learning by enabling EFL learners to effectively express themselves. In fact, vocabulary serves as the gateway to language acquisition; yet novice language learners often struggle with finding effective strategies for vocabulary learning. Thus, vocabulary learning is essential for successful language learning and greatly affects the mastery of other language skills, such as listening, speaking, reading, and writing (Nation, 2001). In addition, a lack of vocabulary knowledge is identified as a major impediment to second language acquisition. Ur (1996) emphasized the importance of vocabulary knowledge in conveying individuals' intentions, highlighting its indispensable nature in communication. In this regard, EFL teachers have constantly been searching for different methods of presenting vocabulary items to their EFL learners so as to maximize their vocabulary learning performance (Zahedi & Abdi, 2012).

For example, Harmer (2001) referred to the decontextualized words list method through which EFL learners were given a list of vocabulary items to memorize. However, the downside of this method was that EFL teachers had to also provide the learners with the definition of those words and give examples of those words in context. Another criticism levelled against this method was that it was a time-consuming method of memorizing a long list of words, which did not help with the learning and retention of all of them. On the contrary, (Fratzen, 2003)mentioned the contextualized method of vocabulary instruction, whereby vocabulary items were taught through

inadequate textual support and contextual clues. However, since these clues were largely insufficient, this would add to the intricacies of learning the meanings of the more difficult words.

Notwithstanding, (Nation, 2001) claimed that contextualized vocabulary instruction accommodated with guessing the meaning from context through reading passages should be considered as an important vocabulary teaching method. More recently, however, one strand of studies (e.g., Aldhionita, 2015; Karimi, 2016) has focused on the effectiveness of various media types including visual media, such as pictures, on the vocabulary learning and retention of the EFL learners. In what follows, the picture presentation and its subtypes, namely still- and motion-picture presentations are described.

Picture presentation and vocabulary instruction

In the past, educators have predominantly adhered to traditional teaching methods or adopted hybrid methodologies. Practices such as translation, repetition, and rote memorization have been commonly in place for vocabulary instruction (Alizadeh, 2016; Taheri and Davoudi, 2016). However, the recent transition from traditional methods to more modern ones has brought about various new techniques and strategies in vocabulary learning and instruction (Zohrabi et al., 2018). For example, the application of media in vocabulary instruction has been reported to hold significance in educational settings. Media tools are instrumental in facilitating the dissemination of vocabulary to learners, aiding both teachers and students in achieving educational objectives. Besides, it was found that media serve as instruments that educators use to engage students by bringing elements of real-world scenarios into the classroom, thereby presenting language in a comprehensive communicative context. Consequently, media plays a vital role in the instructional process.

There exists a plethora of media types, such as text, picture, video, etc., available for vocabulary instruction. Concerning text-based vocabulary instruction, a number of drawbacks were reported in the literature (Nguyen, 2022). For example, EFL learners are not provided with sufficient exposure to the target language. Besides, they are boring and unengaging, thus making it difficult to stay motivated. To resolve these issues, many researchers have emphasized the important role visual media could play in fostering vocabulary acquisition (Karimi, 2016). For example, Harmer (2001) highlighted the use of integrating visuals in teaching, noting that visual media can motivate students and enhance learning experiences. Visual media in the classroom allow learners to observe gestures and facial expressions, which are crucial for understanding the nuances conveyed by intonation and tone in communication. Thus, the focus of language learners is directed towards the visual stimulus, ensuring that all students in the classroom are engaged simultaneously. The utilization of visual media plays a pivotal role in helping both educators and students attain the objectives of the educational process. Concurrently, visual media serves as a means of supporting instructors' elucidation and aiding students in comprehending the educational materials or lessons provided.

Pictures, as a form of visual media, encompass any visual stimuli perceivable by the human eye. In essence, a picture can be defined as a visual representation created through various artistic means (Merriam-Webster, n.d.). Furthermore, according to Aldhionita (2015), pictures are categorized as visual instructional materials. Wright (1989) distinguishes various types of pictures, including depictions of objects, individuals, groups of people, historical scenes, and informative imagery, among others. Thus, the integration of media is integral to the teaching and learning processes. As noted by Phillips (1993), "vocabulary acquisition is most effective when the meanings of words are illustrated, for instance, through images, actions, or tangible objects." This implies that imagery can be leveraged to teach students vocabulary, necessitating the avoidance of monotonous teaching approaches on a consistent basis.

More recently, the impact of multimedia annotations on vocabulary acquisition has been a topic of debate in research. Studies indicated that incorporating verbal (e.g., video) and visual (e.g., images) elements together with text is more advantageous for vocabulary learning than using verbal or visual stimuli independently (Ramezanali and Faez (2019); Teng, 2022). Critically, however, research findings in this regard are still inconclusive, suggesting that learning new words with annotations comprising text and images is more effective than learning with text alone, text combined with video or audio input accompanied by text and picture annotations (Yeh & Wang, 2003). Conversely, some studies have reported no significant variance between different glossing conditions, such as textual glosses, pictorial glosses, and combined text and picture glosses (Çakmak and Erçetin, 2018; Yanguas, 2009), or between text-only glossing and text with pictures (Boers et al., 2017). In any event, two picture presentation modalities, namely still-picture and motion-picture presentation modalities, have been studied less often, and the comparative effect of the two modalities on EFL learners' vocabulary learning and retention has not been adequately dealt with in the literature. Thus, they are described below.

Still-picture presentation

Pictures are considered a valuable aid, which brings "images of reality into the unnatural world of the language classroom" (Hill, 1990). They are capable of attracting the EFL learners' attention and drawing it to the vocabulary items being taught. Still, Pictures are regarded as a kind of visual instruction that is thought to increase the EFL learners' motivation to generate positive perceptions towards vocabulary learning and statistically improve it (Akbulut, 2007; Baralaei & Najmabadi, 2015; Khafidhoh & Carolina, 2019; Ta Na & Trang, 2022; Yoshii, 2006; Zou & Feng Teng, 2023). EFL teachers generally believe that still picture presentation can deepen the EFL learners' understanding of lexical items because EFL learners can associate new words with a still picture and this association in their memory makes it easier for them to remember the meaning of those words. Another general attitude concerning the effectiveness of still picture presentation is that it provides more time for centralization compared with other types of visual media, such as motion pictures (Ghader & Bahlooli Niri, 2016).

For example, Zou and Feng Teng (2023) examined the effects of three task types (i.e., reading comprehension, cloze test, and sentence writing) accompanied by four annotation types (i.e., text, picture, graphics interchanges format (GIF), and video annotations) on learning 10 vocabulary items by 360 adults assigned to 12 groups. Findings revealed the more effectiveness of sentence writing tasks, cloze tasks, and reading comprehension tasks, respectively. Besides, pictures and GIFs were more effective than video annotations and texts. Overall, the participants held a positive attitude towards multimedia-supported vocabulary learning.

Also, Amalia (2019) delved into the effectiveness of utilizing still pictures on thirty eighth-grade students' vocabulary learning. The experimental group received a still-picture presentation, while the control group followed their conventional translation-based vocabulary instruction without pictures. Results revealed the significant effectiveness of still-picture presentation modality on the learners' vocabulary attainment. Similarly, Ta Na and Trang (2022) scrutinized the impact of utilizing images for vocabulary instruction in EFL classrooms, concurrently evaluating the EFL students' perceptions regarding this instructional approach. The experimental group exhibited superior performance, and the study unveiled positive attitudes among the experimental students toward the utilization of images for vocabulary instruction.

In the Iranian EFL context, Heidari Zad (2018) conducted a study to investigate the impact of utilizing images on enhancing the vocabulary acquisition of Iranian EFL learners. The quasi-experimental research involved sixty female students at the elementary level and spanned one academic semester. Findings from the study revealed that employing pictures as educational aids is a potent approach for teaching vocabulary, possibly because they stimulate both the visual and

verbal memory of learners. By incorporating pictures, students were able to establish connections between images and corresponding verbal expressions. The utilization of pictures created a relaxed learning environment attributed to their inherent nature, which is crucial as anxiety hinders the learning process. Another significant outcome was the boost in self-confidence among students in the experimental group, as they grasped the material easily and effortlessly, leading to feelings of success and efficiency. The enhancement of self-confidence is pivotal for fostering learner autonomy, a crucial element in the overall learning process, especially in language acquisition.

Motion-picture presentation

A number of studies (e.g., Liu et al., 2018; Teng, 2022; Yeh & Wang, 2003) revealed the positive impact of motion-picture presentation versus still-picture modalities on vocabulary learning. They reported that the difference between the two is such that motion pictures produce an illusion of movement through which abstract concepts can be explained more easily.

In the same vein, (Teng, 2022)compared various annotation modes such as text-only, text with additional word information, text with word information and audio, and text with word information and video annotations. Results indicated that the text with word information and video annotation mode was the most efficient in bolstering vocabulary learning. Conversely, in a study by (Yeh & Wang, 2003) comparing text-only, text-plus-picture, and text-picture-plus-audio annotations, text-plus-picture annotations emerged as the most effective, while text-picture-plus-audio annotations were the least effective. Similarly, in a study by (Liu et al., 2018) comparing graphics with audio, graphics with text, and graphics with audio and text, no significant disparities were observed in learning outcomes as measured by both a knowledge retention test and a vocabulary test.

SoHee (2019) delved into an examination of how Korean college students learning English as a Foreign Language (EFL) engage with different forms of media, specifically images paired with texts and video clips accompanied by texts, in relation to their acquisition of vocabulary. The researcher aimed to scrutinize the impact of varied visual stimuli. The findings revealed that images paired with texts yielded superior results compared to video clips with texts, particularly for individual words in the immediate post-test, whereas video clips with texts facilitated longer retention of phrasal verbs. Participants indicated that the use of images with texts established strong word associations, while video clips with texts motivated them to engage with vocabulary within authentic contexts. Some participants also expressed the view that English explanations and examples were beneficial when inferring word meanings in context. The study suggested that the integration of media could promote learner autonomy in vocabulary acquisition.

3. THEORETICAL FRAMEWORK

Dual Coding Theory

The above studies were informed by the Dual Coding Theory, positing that human beings are armed with two different systems, namely a verbal and a nonverbal system, for storing the incoming data in their short- and long-term memories. The verbal system stores the symbolically represented data, while the other system stores the nonverbal data. In fact, the Dual Coding Theory proposes that there is a great difference between the ways an EFL learner comprehends pictures and that of comprehending textual information (Paivio, 1971), as cited in (Nassaji, 2004). Put differently, the verbal cognitive subsystem is in charge of processing a text, while the non-verbal cognitive subsystem is responsible for processing a picture. The two systems function independently. However, if the data is coded in both systems, it allows for better recall. According to this theory, it was hypothesized that EFL learners could display better mastery of the vocabulary items when they are taught the vocabulary items through pictures, compared with when they are only taught them through text alone. This occurs because the verbal text and imagery combined can be highly effective in terms of learning vocabulary items (Sadoski, 2005).

Within the framework of Dual Coding Theory, the inclusion of images is expected to positively influence vocabulary acquisition. Studies have indicated that pairing an image with a word to be learned may enhance retention compared to presenting solely the word and its translation (Akbulut, 2007; Shahrokni, 2009; Yeh and Wang, 2003). Images have the potential to activate multiple codes, incorporating both visual and verbal elements, offering a theoretical advantage in memory recall. The theory posits that a higher number of activated codes during encoding and retrieval correlates with improved memory retrieval, suggesting that associating an image with a word to be learned may promote deeper processing and subsequently enhance vocabulary acquisition. Nonetheless, conflicting findings exist, with some studies reporting no effects or even detrimental impacts associated with the addition of images to foreign language learning strategies, hinting at the possibility of redundancy effects, especially when dealing with concrete nouns.

Drawing on the strengths and weaknesses of the reviewed studies above, three primary unresolved concerns should be addressed. The primary concern pertains to whether time should be considered a crucial element in the realm of vocabulary acquisition. Another concern involves exploring the utilization of diverse combinations of media presentation (e.g., single versus dual). While existing studies have primarily focused on text annotations, text-plus-picture annotations, videos, and static pictures, research on dynamic annotations (e.g., GIFs and video annotations) and motion-picture presentation remains scarce. The reliance on still or static pictures may not cater to the needs of the learners. Thus, the simultaneous presentation of words alongside static and dynamic visuals to language learners might be a solution (Mayer & Fiorella, 2014). Dynamic visuals may facilitate learners in establishing meaningful associations between words and meanings, aiding in their active encoding into long-term memory. (Mayer, 2014) opined that learners engage in two distinct information processing channels: auditory or verbal and visual or pictorial. Dynamic images and videos can play varying roles in forging connections between verbal and visual representations, ultimately integrating them into the learner's existing knowledge base. A third unresolved issue revolves around whether the impact of multimedia annotations on vocabulary acquisition is contingent on the multimodality of the annotations (Bozorgian et al., 2022; Teng & Zhang, 2023).

In conclusion, second and foreign-language learners often struggle with learning and retaining multi-word verbs, such as phrasal verbs, which are absent in their native languages. This lack of familiarity impedes the learners' ability to acquire such vocabulary effectively (Laufer, 2000). Thus, the present study examined two main forms of media presentation (e.g., static versus motion picture presentation) while accounting for the element of time to resolve parts of the above gaps in the related literature. To this end, the purpose of the present study was to investigate the effect of still- versus motion-picture presentation of vocabulary items and compare their effectiveness with respect to the vocabulary learning and retention of Iranian intermediate EFL learners. The significance of this investigation lies in addressing the existing research gaps, reconciling inconsistencies in previous findings, and enhancing our understanding of the optimal combinations of picture presentation modalities for vocabulary learning. By examining the interaction effects among time and conditions, the study seeks to evaluate the applicability of the Dual Coding Theory in the context of multimedia-enhanced vocabulary learning tasks and contribute to the development of more effective instructional approaches in the realm of vocabulary learning. Thus, drawing upon the gaps and issues identified in the related literature, the following research questions have been postulated:

RQ1: Does using different modes of picture presentation have any statistically significant effect on Iranian intermediate EFL learners' phrasal verb learning and retention?

RQ2: Which picture presentation modality is more effective in improving Iranian intermediate EFL learners' phrasal verb learning and retention?

4. METHODS

Design

A three-group, pre-test, post-test quasi-experimental design with a quantitative approach was used to answer the two research questions. The participants were selected through a convenient sampling procedure and then randomly assigned to the experimental groups and the control group. The three groups went through the pretest phase first. Then, the experimental groups were given the vocabulary learning treatments, namely the still-picture presentation (EG1) and the motion-picture presentation (EG2) for a period of 10 sessions, whereas the control group (CG) followed their conventional instruction. However, the three groups underwent the treatments in exactly the same sessions and received the same vocabulary learning tests with rearranged items during the pretest, immediate posttest, and delayed posttest phases. These were done to rule out the negative effects of history and testing effects and threats to internal validity (Ary et al., 2019). Finally, statistical analyses were used to determine whether the two forms of picture presentation treatments (i.e., still picture vs. motion picture) had a meaningful effect on the participants' vocabulary learning and retention.

Participants

The original pool of the present study consisted of 120 Iranian EFL learners who were learning English at an English language academy in Mazandaran, Iran. They shared the same first language background and were in the range of 15 to 20 years of age. They were kindly invited to participate in an Oxford Quick Placement Test (OQPT) to examine their L2 proficiency levels at the beginning of the study. Then, 90 intermediate EFL learners were selected and randomly assigned to three groups, namely EG1 ($n = 30$), EG2 ($n = 30$), and CG ($n = 30$). EG1 was the still picture presentation group, EG2 was the motion picture presentation group, and CG was the regular class practice group.

Instruments and material

The present study employed two instruments (i.e., OQPT and vocabulary quiz) to collect the data, which are described below. An Oxford Quick Placement Test (OQPT), developed by Oxford University Press and the University of Cambridge Local Examinations Syndicate, was administered among the participants. This test was used to identify homogeneous participants in terms of their language proficiency level. The test consisted of 60 items on grammar, structure, vocabulary, and reading. The participants were given 40 minutes to complete the test. The test had high validity and reliability measures, as reported in the literature.

A 50-item, multiple-choice vocabulary quiz was uniquely developed for the purpose of this study. The test consisted of 50 target English phrasal verbs to measure the participants' knowledge of vocabulary items. The same test was used as the immediate and delayed post-tests to examine the participants' vocabulary learning and retention after receiving the 10-session vocabulary learning treatment. The internal consistency reliability of the instrument was calculated to be equal to .89, which is considered acceptable. Also, the content validity of the instrument was examined at the outset by two professors in the subject-specific field.

Data collection procedure

Initially, the researcher obtained ethical permission from the research ethics committee of the Islamic Azad University of Qaemshahr. Besides, written informed consent was obtained from the participants below the age of 18 and their parents. They were informed about the purpose of the research and were advised that their data would remain confidential and be used merely for research purposes. Besides, they were notified that their names would remain anonymous during the whole research project. One week before the outset of the treatment, Oxford Quick Placement

Tests (OQPTs) were given to the target population to select homogeneous participants in terms of language proficiency.

To conduct the study, the three groups were given the pre-test on vocabulary learning. The study was conducted in ten sessions. Each session took 30 minutes to complete. Following previous studies (e.g., Nemattabrizi & Marzieh, 2016), EG1 was given the first treatment on vocabulary learning, that is, the still picture presentation of vocabulary items through PowerPoint slides, while EG2 was given the second treatment on vocabulary learning; that is, the motion picture presentation of vocabulary items through a laptop and a projector (i.e., projecting the animated pictures of target words). Besides, CG, which was the regular class practice group, followed the conventional vocabulary learning instruction used at the English Language Academy; that is, through the word list method. The picture presentation method for teaching vocabulary items (i.e., phrasal verbs) aimed to present the target words in the form of still and motion pictures. The reason was that the participants could attend to the spelling, parts of speech and definitions of these lexical items. Another reason was that they could employ them when asked to make an example sentence using that target word to activate their schema stored in their long-term memories and extract the words repeatedly for the sake of vocabulary learning and retention. After the treatments, all three groups underwent immediate and delayed vocabulary learning posttests a week later. To recap, the data collected in the present study consisted of the results of the OQPT test and the target form vocabulary pre-and post-tests.

5. DATA ANALYSIS

The Statistical Package for the Social Sciences (SPSS), version 24 (IBM SPSS Statistics 24.0), was used to analyze the EFL learners' performance on vocabulary learning pre-and post-tests. Prior to data analysis, the acceptable internal consistency reliability of the vocabulary tests in terms of Cronbach's Alpha statistic was ensured. Then, we ran one-way and repeated measures ANCOVA to address the research questions. However, we initially checked and confirmed the assumptions for running this test; that is, normality of the data, Levene's homogeneity of variances, random independent samples, homogeneity of regression slopes, scatterplot, and linearity. Effect sizes were also reported in terms of the statistical tests performed.

To compare the vocabulary learning performance of the participants from time one (i.e., pretest) to time two (i.e., immediate posttest), their performances were compared using a one-way ANCOVA test. In addition, to examine their retention of the vocabulary items, a repeated measures ANCOVA test was run on their performances from time one (i.e., pretest) to time three (i.e., delayed posttest). The choice of the one-way or repeated measures ANCOVA was because we intended to compare the effects of an independent categorical variable (i.e., vocabulary instruction method) with two levels (i.e., still-picture presentation and motion-picture presentation) on one dependent continuous variable (i.e., vocabulary learning) with two or three levels (i.e., vocabulary learning pretest, immediate posttest, and delayed posttest) while controlling for the effects of an independent continuous covariate (i.e., vocabulary learning pretest).

6. RESULTS

Table 1 presents the descriptive statistics related to the experimental groups and the control group, and Figure 1 also shows the participants' marginal means of vocabulary learning performance scores from time one to time three.

Table 1: Descriptive statistics related to the participants' performance from time one to time three

Group	Pretest		Posttest1		Posttest2	
	Mean	**Std. deviation**	**Mean**	**Std. deviation**	**Mean**	**Std. deviation**
regular presentation	11.20	2.35	12.67	2.09	14.07	1.94
still-picture presentation	11.63	2.59	13.37	2.18	14.77	1.94
motion-picture presentation	11.43	2.68	13.53	2.36	15.13	2.33

Figure 1. The estimated marginal means of the three groups from time one to time three
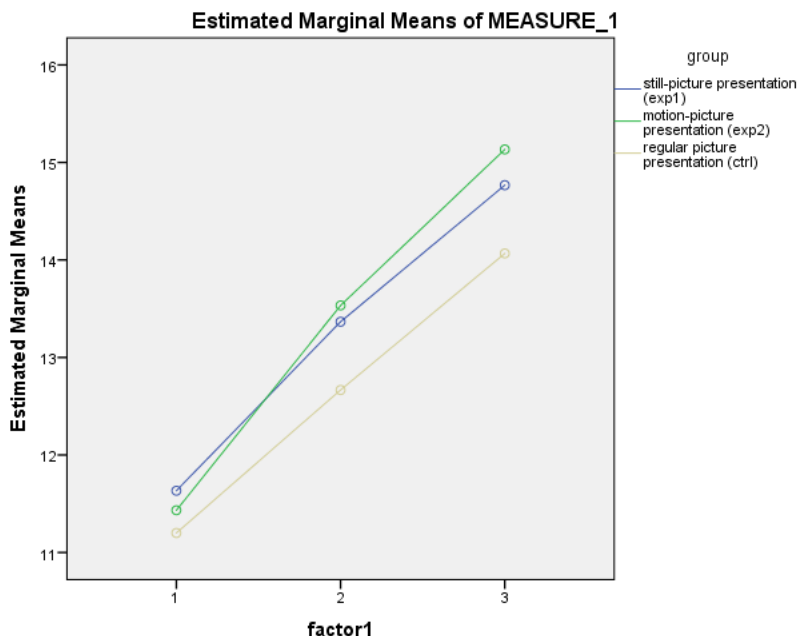
Research question one

The first research question examined whether using different modes of picture presentation has any statistically significant effect on the phrasal verb learning and retention of Iranian intermediate EFL learners. The first research question consisted of two parts: vocabulary learning and vocabulary retention. In what follows, Table 2 presents the inferential statistics related to the results of a one-way ANCOVA test run on vocabulary learning and immediate post-test scores of the participants in the three groups, respectively. As evident from Table 2, there was a statistically significant difference among the three groups in terms of their performance on the vocabulary learning posttest (F (2, 86) = 3.78; $p < .05$) with a medium effect size ($\eta p^2 = .07$).

Table 2: One-way ANCOVA on vocabulary learning of the three groups from time one to time two

Source	Type III Sum of Squares	df	Mean Square	F	Sig	Partial Eta Squared	Noncent. Parameter	Observed Power
Corrected Model	360.10	3	120.03	129.55	.00	.81	388.66	1.00
Intercept	74.05	1	74.05	79.92	.00	.48	79.91	1.00
Pretest	347.41	1	347.41	374.96	.00	.81	374.96	1.00
Group	7.00	2	3.50	3.78	.02	.08	7.56	.67
Error	79.68	86	.92					
Total	16095.00	90						
Corrected Total	439.78	89						

In addition, to examine whether there were any statistically significant differences among the three treatments in terms of the participants' vocabulary retention from time one to time three, we ran a repeated measures ANCOVA test. In what follows, Table 3 presents the inferential statistics related to the results of a repeated-measures ANCOVA test run on the immediate and delayed posttest scores of the participants in the three groups, respectively. Table 3 shows that there was a statistically significant difference among the three groups in terms of their performance on the vocabulary retention posttests ($F (2, 86) = 4.97$; $p < .05$) with an almost large effect size ($\eta p^2 = .10$).

Table 3: Repeated Measures ANCOVA on vocabulary retention of the three groups from time one to time three

Source	Type III Sum of Squares	df	Mean Square	F	Sig	Partial Eta Squared	Noncent. Parameter	Observed Power
Intercept	250.03	1	250.035	131.52	.00	.60	131.52	1.00
Pretest	614.50	1	614.50	323.23	.00	.79	323.23	1.00
Group	18.92	2	9.46	4.97	.00	.10	9.95	.79
Error	163.49	86	1.90					

Thus, null hypothesis one (H_01) was rejected. Therefore, it could be concluded that there was a statistically significant difference among the three groups in terms of vocabulary learning and retention.

Research question two

The second research question queried which picture presentation modality was more effective in improving the phrasal verb learning and retention of Iranian intermediate EFL learners. Results of the pairwise comparisons with respect to the participants' vocabulary learning from time one to time two and with regard to their vocabulary retention from time one to time three are presented in Tables 4 and 5, respectively. Table 4 shows that the only statistically significant difference in terms of vocabulary learning was the one between the motion picture presentation treatment given to the experimental group two and that of the regular presentation given to the control group participants (p = .02). No statistically significant difference was found between the still picture presentation and that of the regular presentation; nor did we find any statistically significant difference between the two treatments given to the experimental groups (i.e., still picture vs. motion picture presentation). Thus, it can be concluded that the only treatment that was more effective in terms of the participants' vocabulary learning performance compared with the other treatments was the motion-picture presentation.

Table 4: Pairwise comparisons related to the one-way ANCOVA on vocabulary learning

(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
Still picture	Motion picture	-.32	.24	.59	-.93	.28
	Regular	.36	.24	.45	-.24	.96
Motion picture	Still picture	.32	.24	.59	-.28	.93
	Regular	.68	.24	.02	.07	1.29
Regular	Still picture	-.36	.24	.45	-.96	.24
	Motion picture	-.68	.24	.02	-1.29	-.07

Table 5: Pairwise comparisons related to the repeated measures ANCOVA on vocabulary retention

(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
Still picture	Motion picture	-.41	.25	.31	-1.02	.20
	Regular	.38	.25	.40	-.23	.99
Motion picture	Still picture	.41	.25	.31	-.20	1.02
	Regular	.79	.25	.00	.18	1.41
Regular	Still picture	-.38	.25	.40	-.99	.23
	Motion picture	-.79	.25	.00	-1.41	-.18

Also, Table 5 shows that motion picture presentation was also the only treatment that was more effective in terms of the participants' vocabulary retention from time one to time three ($p < .05$). In conclusion, motion picture presentation was the most effective treatment in terms of the Iranian intermediate EFL learners' vocabulary learning and retention.

7. DISCUSSION

Literature suggests that the provision of various media types may lead to varying levels of vocabulary learning. Thus, the present study aimed to examine the comparative effects of two vocabulary instructional methods (i.e., motion- versus still-picture presentation) on vocabulary learning and retention of Iranian intermediate EFL learners. To this end, the first research question examined whether using different modes of picture presentation had any statistically significant effect on the learning and retention of phrasal verbs by Iranian intermediate EFL learners. The answer to the first research question was affirmative. We found that there was a statistically significant difference in terms of the picture presentation modality used while teaching vocabulary items and that the difference created a statistically significant effect on the participants' learning and retention of vocabulary items.

In general, our results were in dissonance with those of Jiang (2015), who revealed no significant differences among the three presentation modes, namely vocabulary list, picture/animation/imagery mode, and incidental context in terms of the participants' vocabulary learning and short-term recall. However, they found that the three modes significantly affected the participants' long-term vocabulary retention. That being said, it was found that certain images exhibited more consistent memorability than others (Isola et al., 2011).

Still, the results of the present study were in agreement with those of the previous one, such as (Ghader & Bahlooli Niri, 2016), revealing that different pictorial presentation modes would leave a significantly positive effect on the short-term and long-term retention of vocabulary items. Results were also in tandem with those of (Al-Seghayer, 2001), arguing that the use of video and visual presentation created a better mental image. In addition, it was also found that motion pictorial media in animated form was more effective than real videos. Consequently, juxtaposing images alongside text could facilitate the development of a more interconnected understanding within a comprehensive knowledge network (Butcher, 2006, 2014).

The second research question queried which picture presentation modality was more effective in improving the phrasal verb learning and retention of Iranian intermediate EFL learners. Results of the pairwise comparisons revealed that the motion-picture presentation of phrasal verbs was more effective in terms of vocabulary learning and retention compared with the other two treatments, namely still-picture presentation and regular presentation of phrasal verbs.

Our results were in partial discord with those of (SoHee, 2019), who examined the effectiveness of different forms of media, specifically images paired with texts and video clips accompanied by texts in their acquisition of vocabulary items. The findings revealed that images paired with texts yielded superior results compared to video clips with texts, particularly for individual words in the immediate post-test, whereas video clips with texts facilitated longer retention of phrasal verbs. Participants indicated that the use of images with texts established strong word associations, while video clips with texts motivated them to engage with vocabulary within authentic contexts. Some participants also expressed the view that English explanations and examples were beneficial when inferring word meanings in context. The study suggested that the integration of media could promote learner autonomy in vocabulary acquisition.

On the other hand, the results of our study were in line with those of (Ghader & Bahlooli Niri, 2016), who indicated the effectiveness of the pictorial presentation of vocabulary learning and retention and asserted that the motion picture presentation mode was more effective. Results were also in partial agreement with those of (Jiang, 2015), asserting that the pictorial presentation mode had the most significantly positive effect on vocabulary recall and production. In general, it was found that the application of visual aids fostered the motivation and engagement factors, which were necessary for effective vocabulary learning (Harmer, 2001). In the same vein, (Wright, 1989) asserted that images contributed to generating interest and motivation, establishing a sense of language context, and providing a specific reference point or stimulus. Similarly, (Chastain, 1988)suggested that vocabulary learning using pictorial presentation triggered the involvement of both hemispheres of the brain, which was crucial for the retention and recall of information among language learners.

To recap, the only statistically significant treatment with more effectiveness in terms of vocabulary learning and retention was the motion-picture presentation. The possible reasons were better engagement, more motivation, and higher achievement as a result of receiving the motion-picture presentation of vocabulary items. It provides EFL learners with additional learning experiences, thus adding to their vocabulary knowledge more efficiently (Milah, 2022). In addition, it provides more exposure to vocabulary items, thus increasing their vocabulary knowledge more expediently (Ashcroft et al., 2018). Along this line, our findings drew on Dual Coding Theory, revealing that pictorial presentation and the motion picture mode were both effective vocabulary instruction methods in terms of vocabulary learning and word retention. Similarly, (Baralaei & Najmabadi, 2015)explained that Iranian EFL learners' vocabulary retention through exposure to visualized vocabulary in illustrations and visuals was enhanced because this method of vocabulary instruction engaged and motivated the EFL learners to embed the

vocabulary items in their long-term memory with more ease through active involvement and agency.

Theoretically speaking, images and visuals are more effectively retained than words due to their activation of both visual and verbal codes, unlike words that primarily trigger verbal codes. By stimulating two codes, visual and verbal, an image is believed to create a robust memory imprint. As elucidated by (van den Broek et al., 2021), the amalgamation of words and images has the potential to enhance learning outcomes in comparison with text-based learning exclusively, which was the case with the present study. Therefore, the findings of the present study are in complete alignment with the research findings regarding the Dual-Coding Theory positing a nuanced perspective, particularly in studies demonstrating that foreign language vocabulary retention was more effective when accompanied by visuals and pictorial presentations rather than textual annotations.

8. CONCLUSION

The present study examined the effect of different forms of picture presentation on Iranian EFL learners' *learning* and *retention* of a number of vocabulary items (i.e., phrasal verbs). We found that there was a statistically significant difference in terms of the picture presentation modality used while teaching vocabulary items and that the difference created a statistically significant effect on the participants' learning and retention of vocabulary items. In addition, the results of the pairwise comparisons revealed that the motion-picture presentation of phrasal verbs was more effective in terms of vocabulary learning and retention compared with the other two treatments, namely still-picture presentation and regular presentation of phrasal verbs. Thus, our findings revealed that using different forms of presentation, such as still-picture and motion-picture presentation, has a positive impact with a large effect size on the vocabulary learning and retention of EFL students, with the motion-picture presentation being more effective compared with the other forms.

Collectively, our results are informed by the Dual Coding Theory, revealing that pictorial presentation and the motion picture mode are both effective vocabulary instruction methods in terms of vocabulary learning and word retention. EFL learners' vocabulary retention through exposure to visualized vocabulary in illustrations and visuals is enhanced because this method of vocabulary instruction engages and motivates the EFL learners to embed the vocabulary items in their long-term memory with more ease through active involvement and agency. Theoretically speaking, images and visuals are more effectively retained than words due to their activation of both visual and verbal codes, unlike words that primarily trigger verbal codes. By stimulating two codes, visual and verbal, an image is believed to create a robust memory imprint.

In fact, our approach to enhancing the process of deep encoding in vocabulary acquisition involves the utilization of multimedia. Multimedia learning is characterized as the assimilation of information through both textual and visual elements simultaneously (Mayer, 2002). With respect to 'simple' vocabulary learning (i.e., presenting the L2 word by itself as opposed to in-text), the effects of multimedia learning have been confirmed in the related literature. However, a tentative consensus suggests that adding images is advantageous solely for learning abstract words. This proposition is supported by studies involving concrete words which did not reveal notable advantages when pairing the foreign word with an image.

As noted by Phillips (1993), "vocabulary acquisition is most effective when the meanings of words are illustrated, for instance, through images, actions, or tangible objects." This implies that imagery can be leveraged to teach students vocabulary, necessitating the avoidance of monotonous teaching approaches on a consistent basis. By incorporating visual media, educators can efficiently and effectively impart vocabulary knowledge to their students. Consequently, images serve as

potent tools for enhancing English language proficiency, particularly for students with a preference for visual learning.

All in all, among the array of techniques proposed for teaching vocabulary, the integration of visual stimuli stands out as one of the most prevalent ones. This is backed by previous literature, such as (Mayer, 1999) study, which discovered that presenting vocabulary items alongside images as visual stimuli enhances students' learning and retention capabilities. Indeed, imagery proves to be highly beneficial, motivating students to engage more deeply in the learning process. Thus, it stands to reason that the incorporation of these different modes of pictorial presentation of vocabulary items is highly useful in language classrooms. Although the provision of differentiated input via media effects may lead to varying levels of awareness in acquiring new vocabulary, this study posited that the utilization of media can yield positive impacts on the acquisition of vocabulary. Due to the absence of comprehensive research scrutinizing the impacts of two distinct modes on learning individual words and phrasal verbs, this study proposed educational implications for identifying effective instructional methodologies for vocabulary acquisition in general, and phrasal verb acquisition in particular, among EFL learners in language institutional settings and beyond.

Taking into account the significance of vocabulary on the four macro-skills in EFL classrooms, it is recommended that the EFL teachers and researchers utilize these vocabulary presentation modes in their classrooms and studies to maximize the learning and retention of the vocabulary items. For example, EFL teachers can use contextualized vocabulary instruction methods facilitated by motion-picture presentations to improve the EFL learners' vocabulary learning and retention significantly. In doing so, they need to raise their EFL learners' awareness of mobile phone use in EFL classroom contexts or use a laptop and a projector to teach the vocabulary items. Also, it is advisable that EFL teachers reinforce this motion-picture presentation modality with comprehension questions and other word drills. Notably, the motion picture presentation can be used during reading instruction to develop word knowledge. Besides, material developers are also advised to embed suitable pictures in their textbooks and include multimedia applications or instructional CDs with visual presentations along with the textbook to improve the EFL learners' vocabulary learning and retention. Various factors, such as a convenience sampling procedure, a quasi-experimental quantitative research design, an intermediate proficiency level, and a picture presentation mode of instruction, might have limited the generalizability of the findings. Thus, future studies can consider a true randomization method, a mixed methods research design, lower- and upper-intermediate proficiency levels, and audiovisual presentation of vocabulary items. Besides, future lines of research can consider other EFL contexts, such as high schools and universities. Also, a new stride could be to consider EFL learners with various individual difference variables, such as working memory capacity, motivation, anxiety, etc. In particular, it would be of interest to the future line of research to examine whether working memory capacity can impact the effect of these picture presentation modalities on EFL learners' vocabulary learning and retention. Nevertheless, the findings here can provide fresh insights into our understanding of the transfer patterns of vocabulary learning in language institutes when using images and video clips for single words and phrasal verbs.

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