

The Learning Potential of a TV Series in Promoting L2 Incidental Learning of Idiomatic and Non-Idiomatic Phrasal Verbs

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ABSTRACT

Background: The bulk of past studies, which have shown that audiovisual materials are potential sources for phrasal verb learning, have focused on short materials. However, the incidental learning of idiomatic and non-idiomatic phrasal verbs through extensive viewing of a complete season of a TV series has remained underexplored.

Purpose: The main aim of the present study is to explore the learning potential of viewing an entire season of a TV series in incidental learning of idiomatic and non-idiomatic phrasal verbs.

Method: The study recruited 75 second language (L2) learners and placed them randomly into an experimental group and a control group. Data were gathered through the updated vocabulary levels test and two vocabulary tests. Over one month, the experimental group viewed an entire season of a TV series, and the control group followed their regular learning routine. Immediately after the end of the eight viewing sessions, the experimental and control groups completed the form and meaning post-tests.

Results: The results indicated that viewing a TV series contributed to the development of phrasal verb knowledge. The experimental group developed both form and meaning knowledge of the target phrasal verbs, and greater gains were made at the form recognition level. The research also revealed that although repetition of the target phrasal verbs in the series significantly correlated with the learning gains reported from both the form and meaning tests, its role in meaning was greater.

Implications: The study provides further valuable insights into how watching a TV series affects the learning of idiomatic and non-idiomatic phrasal verbs. It also advances our understanding of how repetition impacts phrasal verb uptake.

KEYWORDS

audiovisual input, incidental vocabulary learning, phrasal verbs, second language learning, vocabulary knowledge aspects

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INTRODUCTION

Vocabulary plays a crucial role in L2 development, even more so than in first language development (Schmitt, 2010). However, L2 vocabulary learning is a daunting undertaking (Dang et al., 2022) because L2 learners must master thousands of words to reasonably understand written and spoken discourse (Nation, 2006). Yet, intentional instruction is often not practical for L2 vocabulary learning due to limited classroom time and the sheer number of words that requires covering (Pujadas & Muñoz, 2019). Therefore, vocabulary researchers and

scholars have strived to identify other ways to encourage L2 learners to acquire vocabulary incidentally. Over the past decade, the accessibility of streaming services has greatly increased, creating ample chances for L2 learners to boost vocabulary learning. This and the increasing popularity among young people of viewing audiovisual materials (Pumège & Peters, 2019) have prompted vocabulary researchers to study the effect of audiovisual resources for incidental vocabulary development. In this respect, a large body of research has established that audiovisual materials, which combine aural and visual input, are beneficial

for word uptake (Pujadas & Muñoz, 2023) to their activation of both the verbal and visual memory processing channels (Mayer, 2005).

Although there is a growing interest in examining word learning through audiovisual resources, the majority of earlier research has focused almost exclusively on individual lexical items (e.g., Cekic, 2022; Feng & Webb, 2020; Fievez et al., 2021; Hsieh, 2020; Peters & Webb, 2018; Teng, 2022). Relatively little research has looked at the learning of multiword items incidentally through audiovisual materials (e.g., Majuddin et al., 2021; Pattemore & Muñoz, 2023; Puimège, et al., 2021; Puimège & Peters, 2019; 2020). These few studies have shown that incidental learning of various types of multiword items is possible through viewing audiovisual materials. It has also been reported that learning is moderated by a range of variables (e.g., cognateness word relevance, and frequency of repetition).

Nonetheless, phrasal verbs (a category of multiword items), which are said to be highly ubiquitous in both spoken and written registers (Garnier & Schmitt, 2016), are considered to be important linguistic element of achieving native-like fluency (Gardner & Davies, 2007). Despite their widespread presence in the English language, they are perceived as being a major source of difficulty and bewilderment for many L2 learners (Yasuda, 2010), who tend to avoid using them in their production (AbdulRahman & Abid, 2014; Liao & Fukuya, 2004). Phrasal verb learning through audiovisual materials has been examined in some studies (e.g., Kim, 2019; Spring, 2019). These studies have suggested that visual representations were effective for “making connections between metaphorical extensions of particle meanings”, which in turn, can aid the teaching and learning of phrasal verbs (Spring, 2019, p. 108). While these studies have contributed to our knowledge regarding the positive impacts of audiovisual materials on the learning of phrasal verbs, they were carried out under intentional learning conditions. However, the effect of audiovisual input on phrasal verb learning through incidental learning conditions is still an underexplored topic.

A TV series can serve as a potential source of authentic L2 input to allow L2 learners to continue their learning outside classrooms over an extended period of time (Kobayashi, 2017). However, there is a paucity of studies that have examined the effectiveness of viewing a complete season of a TV series on the incidental learning of phrasal verbs. There is reason to believe that this type of viewing has the potential to promote vocabulary knowledge of the most frequent words, as well as the less frequent ones (Rodgers, 2018; Webb, 2015). Since viewing a whole season of a TV series has proved useful for fostering the incidental learning of single lexical items (Fievez et al., 2021), it is worth examining whether its effects can extend to the incidental learning of phrasal verbs. In addition, given that repetition through viewing a TV series could contribute to the incidental learning of single-word and various multiword vocabulary items,

it is plausible that a similar effect would be observed for phrasal verbs. However, no previous studies have shown this specifically. Accordingly, this study bridges the identified literature lacunas by exploring the potential of viewing a TV series on the incidental learning of phrasal verbs. Additionally, it examines the effect of repetition on phrasal verb uptake, and addresses the below research questions:

- (1) Does viewing an entire season of a television series result in the incidental learning of idiomatic and non-idiomatic phrasal verbs?
- (2) If so, how is the incidental learning of phrasal verbs through a television series affected by the frequency of repetition?

THEORETICAL BACKGROUND

Phrasal verbs, the most prevalent type of multiword items (Liu & Myers, 2020), have attracted considerable research attention, but they have also been at the centre of unabated definitory and classification controversies for a long time. Different studies have adopted different definitions of phrasal verbs. However, for the purpose of this study, a phrasal verb is defined as “a structure that consists of a verb proper and a morphologically invariable particle that functions as a single unit lexically and syntactically” (Liao & Fukuya, 2004, p. 73). Phrasal verbs are regarded as a vital linguistic element (Gardner & Davies, 2007; Schmitt & Redwood, 2011), and therefore failing to use them correctly could lead to unnatural and non-idiomatic English usage (Garnier & Schmitt, 2015). There is an abundance of evidence for their close relationship with language proficiency and fluent language use (Crowley et al., 2023).

Phrasal verbs are ever-present in our everyday language (Chen, 2013), and according to some estimates, in every 150 English words that L2 learners may meet in an English text, there is at least one phrasal verb (Gardner & Davies, 2007). The ratio of phrasal verbs regularly increases because of the constant emergence of new phrasal verbs in use (e.g., chill out) (Schmitt & Redwood, 2011). In the field of L2 research, it is well established that the mastery of phrasal verbs enables L2 learners to produce native-like discourse (Garnier & Schmitt, 2016). Yet, their peculiar syntax and semantic complexity make them a major challenge for the majority of L2 learners, especially those with different first languages to English (Haugh & Takeuchi, 2022; Kovács, 2011).

Research dealing with phrasal verbs has classified phrasal verbs in different ways (Liao & Fukuya, 2004). While some researchers have focused on the syntactic properties of phrasal verbs, the degree of the association between the verb proper and the particle, others have strived to offer insights into the semantic intricacies of phrasal verbs. On the semantic side, Dagut and Laufer (1985) distinguished between

three types of phrasal verbs based on levels of idiomaticity: (1) literal phrasal verbs that have obvious meanings that can be determined from their constituent parts; (2) idiomatic phrasal verbs whose meaning is less obvious and cannot be guessed from the analysis of the meanings of their individual parts; and (3) completive phrasal verbs whose particles indicate the result of the action. By the same token, Ke (2017) divided phrasal verbs into three groups: (1) literal phrasal verbs; (2) semi-transparent phrasal verbs; and (3) idiomatic phrasal verbs. However, Armstrong (2004) argues that the classification of phrasal verbs should be based on the role the particle plays in the meaning of the verb-particle combination, and therefore he has classified phrasal verbs into three types: (1) the directional type, which refers to a group of phrasal verbs whose particles have directional meanings; (2) the aspectual type, which includes a group of phrasal verbs whose particles contribute aspectual meanings to the verb-particle combinations; and (3) the idiomatic type, which consists of phrasal verbs whose verbs and particles are non-transparent.

Moreover, publications that concentrated on phrasal verb learning have adopted two different semantic approaches. The traditional semantic approaches, on the one hand, postulate that the verb-particle formations of phrasal verbs are “arbitrary” and “non-compositional” in the sense that the particle makes no contribution to the meaning of a phrasal verb (Al-Otaibi, 2019; Fraser, 1976). It is thus assumed that the figurative meanings of idiomatic phrasal verbs cannot be explained by the analysis of the meanings of their constituent parts (Al-Otaibi, 2019). Cognitive approaches, on the other hand, hypothesise that figurative phrasal verbs have some degree of compositionality and analyzability and thus “their meanings are not arbitrary but motivated, in the sense that the speakers recognize a few basic relationships between the words in the idioms and their overall figurative interpretations” (Yasuda, 2010, p. 254).

Unlike the traditional approaches which assume that particles make no systematic contribution to the meanings of phrasal verbs, cognitive linguists posit that “particles are orientational metaphors” (Yasuda, 2010, p.252) that carry more importance than the verb constituents in supplying the imagery contents of the meanings of a phrasal verb. In this case, raising learners’ awareness of the orientational metaphors in particles would enable them to mentally generalize meanings across unknown phrasal verbs (Boers, 2000). It is argued that the different meanings of phrasal verbs are often due to the fact that their particles have multiple meanings, and therefore focusing on particle meanings when learning phrasal verbs is more effective than learning the entire phrasal verbs as units (Side, 1990; Spring, 2018). Researchers working with the cognitive semantic paradigm have suggested that the cognitive approaches, such as metaphor awareness (Boers, 2000; Yasuda, 2010) and event conflation (Spring, 2018), facilitate the learning of the figurative meanings of unknown phrasal verbs. However, the

effect of this metaphor awareness has been reported to be moderated positively (Boers, 2000) or negatively (Yasuda, 2010) by typological similarities and dissimilarities between learners’ first and second languages.

Incidental Phrasal Verb Uptake

The process of acquiring lexical items without intending to do so, while being engaged in activities such as reading, listening, or watching audiovisual materials is called incidental vocabulary learning (Hulstijn, 2001). Learning is regarded as incidental when learners are not instructed to learn word items (e.g., phrasal verbs) or informed in advance about the administration of the subsequent retention test. Following similar previous studies (Dang et al., 2022; Puimège & Peters, 2019; 2020), this study operationalized incidental learning with regards to the absence of the direct instruction to learn and the prior test announcement. It is now well documented that audiovisual input, which is an effective input source (Kim, 2019; Spring, 2019; Webb et al., 2023), is beneficial for incidental word learning (see, Montero Perez’s, 2022 for a review of research on the effectiveness of audiovisual input for L2 learning). In this regard, Rodgers (2016) argues that audiovisual materials have a potential for vocabulary development as they fulfil the following conditions of suitable input suggested by Nation (2007): audiovisual materials exist in large quantities; they are engaging and comprehensible; they provide contextual cues that help language learners to pick up the language; and they are familiar to learners. The advantage of audiovisual input centres on the fact that it incorporates auditory and visual input modes. It stands to argue that the use of imagery in audiovisual input is useful for establishing direct cognitive links between pictorial and auditory information (Mayer, 2005), thus aiding viewers to infer the meanings of novel lexical items (Rodgers, 2018).

The Effects of Audiovisual Resources

So far, most published studies that has investigated the impact of viewing audiovisual materials has focused on single vocabulary item learning. For example, Peters and Webb (2018) run two experiments to look at the learning of 64 single lexical items through a one-hour TV documentary program. The researchers reported that their participants were able to incidentally pick up about four new words from the audiovisual material. One of the few studies that has utilized extensive viewing of audiovisual input is Pujadas and Muñoz (2019); they used a TV series to examine the incidental learning of 120 items by young secondary school learners. The findings showed that the learners picked up some words incidentally after extensively viewing the TV series. Further support for the positive impact of extensive viewing of audiovisual materials on the incidental learning of individual lexical items has been provided by Fievez et al. (2021). In their experiment, the researchers have investigated how a set of 78 individual words were learned by watching a complete season of a French series, using form and meaning

recall tests. Their findings indicated that the form of around 14 words and the meaning of 13 words were recalled, after watching the entire season.

The incidental learning of multiword items by viewing audiovisual input has been far less studied. One of the few studies was that by Puimège and Peters (2019), which explored the potential benefits of viewing an excerpt of a TV program on the incidental learning of 20 different kinds of multiword items, including four phrasal verbs, using a range of vocabulary measures. Analysis showed that incidental learning of the multiword items occurred. Similarly, Majuddin et al. (2021) examined L2 students' learning of 20 multiword items (seven phrasal verbs) by viewing one episode of a TV series. Significant gains were reported, indicating that viewing an audiovisual program had positively impacted the learning of diverse kinds of multiword items, including phrasal verbs.

In sum, the foregoing literature review points to the potential effects of viewing different kinds of audiovisual resources for the learning of different kinds of multiword items. However, none of the former studies investigated exclusively the incidental learning of the phrasal verbs. This is surprising given the significance of phrasal verbs in developing natively like English skills. In addition, all the above-cited studies have used either an excerpt of a TV program or only one episode of a TV program. To date, there has been no research examining the impact of watching a whole season of a television series on incidental learning of phrasal verbs. Further research on the effects of viewing a whole season of a TV series for the development of phrasal verbs is, therefore, needed.

The Role of Repetition

In the field of L2 research, it is now documented that frequency of repetition impacts incidental word learning. Provided that learners encounter the target items frequently in a meaning-focused input context, learning can take place (Uchihara et al., 2023; Zhang, 2022). A substantial body of studies have furnished evidence for this assertion, indicating that higher frequencies are linked with greater learning gains via written input (e.g., Pellicer-Sánchez & Schmitt, 2010), spoken input (e.g., Vidal, 2011), and audiovisual materials (e.g., Peters & Webb, 2018). Though viewing research has devoted considerable efforts to explore the impact of repetition on the learning of individual lexical items, only two viewing studies Dang et al. (2022) and Majuddin et al. (2021) to date have studied the effect of repetition on incidental learning of multiword items and both have reported a positive impact of repetition on learning gains. The present study operationalized repetition as repeated meetings with the target phrasal verbs in the chosen TV series. In summary, most former studies have found that repetition has an

impact on the target word development via different input modes. However, there is still a need to explore whether this effect could extend to the learning of phrasal verbs through viewing a complete season of a TV series.

METHOD

Participants

90 L2 first-year students at a key Saudi university participated in this study, but 15 were removed from the final data set because of absenteeism, resulting in 75 final participants. They were undertaking a pre-intermediate English course as a compulsory course in the preparatory year. The participants had learned English for almost nine years and their proficiency level could be considered as lower-intermediate based on their performance in the Cambridge English Placement Test (CEPT). The participants' ages ranged from 18 to 21 years old. The participants received extra credits in their English course in exchange for their time. They belonged to three intact classes. Two intact classes formed the experimental group (n = 48) and one intact class comprised the control group (n = 27).

Materials

An entire season of the animated series *Jurassic World* was adopted as viewing input for the experimental group. It contained eight episodes. The length of each one was 24 minutes, totalling 192 minutes of viewing. The series was about a group of teenagers who had to band together to survive in an adventure camp when the dinosaurs broke out of captivity. The series was watched in the classroom via the streaming service *Netflix*. To ascertain that the chosen series was watchable regarding the speed and clarity of the speech and that it would sustain the participants' interest, a pilot study with 20 first-year university students who shared similar characteristics with the students in the main study was conducted. The outcomes of the pilot study showed that the chosen series was appropriate. The lexical text analysis performed by Heatley's et al. (2002) RANGE software found that there were 17,024 tokens and 1,259 types in the input¹. A large majority (92.13%) of the running lexical items in the input were from the most frequent 2000-word families. Puimège and Peters (2020) suggested that about a 91% lexical coverage cut-off point was acceptable for achieving adequate viewing comprehension. Given the learners' results on the CEPT and their prior vocabulary knowledge as tested by the Updated Vocabulary Levels Test (UVLT) of Webb et al. (2017), this percentage (92.13%) was deemed acceptable for comprehension.

¹ Heatley, A., Nation, P., & Coxhead, A. (2002). Range: A program for the analysis of vocabulary in texts. <http://www.vuw.ac.nz/lals/staff/paul-nation/nation.aspx>.

Target Phrasal Verbs

The target phrasal verbs were selected on the basis of: 1) the unlikelihood of them being already known by the target subjects; 2) the unlikelihood of encountering them outside the experimental; and 3) their frequency of repetition in the selected audiovisual series. The selection of the target phrasal verbs contained several steps. Firstly, an initial list of possible candidates (45 phrasal verbs) was compiled. Secondly, the list was piloted with a group of 30 first-year university students who had a similar L2 proficiency level to the actual participants of the study (from the same B1 level course). Following former viewing studies (e.g., Peters & Webb, 2018), items known to 20% of the piloting participants were removed. Thirdly, two experienced L2 instructors at the same university as the main participants were consulted regarding the chances of encountering the chosen phrasal verbs in the concurrent L2 classes and materials. Phrasal verbs that were likely to be encountered outside the experiment were excluded. It was decided not to add any distractor test items to avoid test fatigue. The final list consisted of 21 phrasal verbs and had 3.0 or higher mutual information scores.

Instruments

Vocabulary Size Test

To check whether or not the participants in the experimental and control groups had similar prior vocabulary knowledge, the UVLT was administered. The test, which has five levels, measures the test-taker's receptive knowledge of the most frequent 5000 vocabulary items. There are 30 items in each level. Each item consists of three meanings and six words (three keys and three distractors). The job of the participants is to tick the correct meaning of the relevant words. The participants were given instructions in Arabic on how to attempt the test. This test has been selected as it has been used in similar former viewing research on L2 learners (e.g., Dang et al., 2022).

Vocabulary Tests

Form recognition and meaning recall tests were adopted to assess the students' knowledge of the chosen phrasal verbs. Both tests were deployed as pretests and posttests and they used the same lexical items, but the target items were ordered differently in the two tests to avoid the risk of a testing effect. The participants first attempted the form recognition test and then took the meaning recall test. This sequence minimized the chance of the testees remembering some of the presented forms of the phrasal verbs (Schmitt & Redwood, 2011). To minimize the chance of random guessing, an 'I don't know' option was used in both tests. In the recognition test (see Appendix A, for an example of this test),

the correct forms of the phrasal verbs that were heard in the series had to be chosen from among three options (the target item and two distractors). In the meaning recall test, the participants were given the target forms of the phrasal verbs and had to recall the meaning. The testees were told to supply the meanings (e.g., synonyms, L2 explanations, or L1 translations) of the target forms of the phrasal verbs in English or Arabic as they appeared in the series. (see Appendix B, for an example of this test),

The participants' answers on the form recognition test and the meaning recall test were marked dichotomously. Zero was given to an incorrect answer and 'I don't know', and one point was awarded to a correct answer. An experienced Arabic-speaking L2 teacher was given 20 random exam sheets of the meaning recall test to mark. An initial high inter-rater reliability of 98% was reached. The remaining inconsistencies were also discussed by the two assessors until an agreement was reached.

Procedure

The study involved three main phases that were conducted over a period of six consecutive weeks of the first academic term in the 2022 academic year. In the first phase, which took place over two sessions, prior to signing the consent form, both groups of subjects were informed about the nature of the experiment (without telling them about the true purpose of the study) and they completed the UVLT. In the following session, they undertook the pretests. In the second phase, the experimental group watched the eight episodes of the series. The participants watched two episodes each week. The control group had their normal English classes and did not watch the series. In the last stage (week six), the experimental and control groups completed the two vocabulary post-tests, which lasted for about 30 minutes each, over two sessions. At the end of the experiment, all participants were given a full explanation of the real aims of the study.

RESULTS

Participants' Reported Vocabulary Knowledge from the UVLT

To check whether or not the participants in the experimental and control groups had similar prior vocabulary knowledge, the UVLT was run. Table 1 presents the participants' mean scores and standard deviations on the UVLT. The results of the series independent samples t-tests showed that the scores on the UVLT of the two groups of the subjects were not significantly different ($p > 0.05$ in all cases), which may suggest that the vocabulary levels of the two groups were similar.

Table 1*Mean Scores and (Standard Deviations) on the UVLT of the Two Groups of Participants*

Levels of UVLT	Experimental group (n = 48)	Control group (n = 27)
	Mean (SD)	Mean (SD)
1K	29.07 (3.86)	29.20 (2.08)
2K	22.94 (3.81)	22.44 (6.82)
3K	16.19 (7.04)	16.56 (4.90)
4K	13.90 (4.41)	14.00 (6.82)
5K	8.93 (1.5)	8.77 (3.59)
Overall	91.03 (15.12)	90.97 (13.49)

Note. Max of each level = 30, Total Max = 150

Table 2*Descriptive Statistics of the Form Recognition Test*

groups	Pre-test		Post-test	
	mean	SD	mean	SD
experimental (n = 48)	.46	.622	9.41	4.57
Control (n = 27)	1.19	1.24	4.11	3.01

Table 3*Two-Way ANOVA Results for Form Recognition Test*

Source	df	SS	Mean Square	F	Sig
Groups	1	205.1	205.1	22.2	.001
Testing Times	1	1352.5	1352.5	146.7	.001
Groups* Test- ing times	1	218.6	218.6	23.7	.001
Error	146	1345.6	9.21		

Viewing Effects on Phrasal Verb Learning

Table 2, which presents the participants' scores on the form recognition pretest and posttest, shows low scores obtained on the pretest by both the experimental and control groups. This may indicate that they had little knowledge of the form of the chosen phrasal verbs before the experimental. Their mean scores improved on the posttest. On average, the participants' mean scores increased by 8.95 and 2.92 points in the experimental and control groups, respectively. This suggests that the form recognition knowledge of the target phrasal verbs was developed between the two test administration times. As depicted in Table 2, the participants in the two groups performed differently in the form recognition pre-and-post-tests. To examine the effects of testing times (pre and post) and the two groups (experimental and control) on the scores on the form recognition test, a two-way ANOVA was conducted (reported in Table 3). Significant main effects for groups, $F(1, 146) = 22.2$, $p < .001$, $\eta^2 = .13$ and

for testing times, $F(1, 146) = 146.7$, $p < .001$, $\eta^2 = .57$ were found, with the former having a medium effect size and the latter having a large effect size. Similarly, a significant interaction with a medium effect size was found between the effects of testing times and groups, $F(1, 146) = 23.7$, $p < .001$, $\eta^2 = .14$.

The data in Table 4 shows that the participants in both groups learned some of the target lexical items between the two testing times. In the experimental group, the knowledge of the meaning of the phrasal verbs increased by 3.96 points between the two testing times. This could indicate

that they learned around four phrasal verbs on average. A two-way ANOVA was run to determine the effects of the test administration times (pre and post) and the two groups (experimental and control) on the scores on the meaning recall test (displayed in Table 5). The ANOVA results revealed that

there was a significant main effect for groups, $F(1, 146) = 39.9$, $p < .001$, $\eta^2 = .21$. and for test administration times, $F(1, 140) = 30.7$, $p < .001$, $\eta^2 = .17$, with large effect sizes. A significant interaction between the testing times and groups, $F(1, 146) = 24.3$, $p < .001$, $\eta^2 = .14$ was also found, albeit with a medium effect size.

Role of Repetition

The relationship between repetition and phrasal verb incidental learning was assessed using the Spearman's rho correlation (the data violated the assumptions of the parametric correlation). These analyses only included data from the experimental group. Any target phrasal verbs that were known at the pretest by the participants were excluded from the analyses. As shown in Table 6, a moderate positive correlation between repetition and learning gains reported at the form recognition test was found, $r(19) = .44$, $p = .045$. A strong positive correlation was also found between repetition and meaning recall, $r(19) = .62$, $p = .003$. These results may suggest that though repetition played a positive role in the incidental learning of both form and meaning, its role in meaning was greater.

DISCUSSION

The findings of this study indicate that viewing a TV series facilitates form and meaning uptake of phrasal verbs. On average, after eight viewing seasons, the experimental participants recognized the form of around nine (42%) new phrasal verbs, and they recalled the meaning of around four (19%) of the 21 target phrasal verbs. On the other hand, the control group recognized about three (13%) new forms of the phrasal verbs and recalled the meanings of .23 (1%) of the items. The control group's scores could be attributed to the testing effect, which is assumed to be very common in incidental vocabulary research (Dang et al., 2022). In fact, this echoes the importance of the recruitment of a control group, as it allows a safe attribution of the learning gains to the intervention employed (Webb & Chang, 2015). However, significant differences in the learning rates were observed in the control and experimental groups; in the two posttests, the experimental group gained significantly higher scores. This suggests that viewing a complete season of a TV series is useful for the learning of phrasal verbs. The present outcomes support the findings provided by a large body of studies regarding the positive impact of watching audiovisual resources on incidental word learning (e.g., Fievez et al., 2021; Majuddin

Table 4

Descriptive Statistics of the Meaning Recall Test

groups	Pre-test		Post-test	
	mean	SD	mean	SD
Experimental (n = 48)	1.17	1.48	5.13	3.26
Control (n = 27)	.70	.99	.93	1.38

Table 5

Two-Way ANOVA Results for Meaning Recall Test

Source	df	SS	Mean Square	F	Sig
Groups	1	182.7	182.7	39.9	.001
Testing Times	1	140.6	140.6	30.7	.001
Groups* Testing times	1	111.3	111.3	24.3	.001
Error	146	668.3	4.57		

Table 6

Correlation Analysis between Vocabulary Tests and Repetition

Variables	Frequency of repetition
Form recognition	.422*
Meaning recall	.621**

Note. ** $p < .01$, * $p < .05$.

et al., 2021; Puimège & Peters, 2019; 2020). They also provide empirical evidence for Webb's (2015) recommendation of extensive viewing, which could be a useful complement to formal language instruction, especially in contexts where there is little exposure to aural L2 input.

On the pretest multiple-choice word form recognition test, the mean score of .46 increased to 9.41 after the intervention and the mean score of 1.17 on the pretest meaning recall test rose to 5.13 on the posttest. This translates into learning rates of approximately 42% and 19% for form recognition and meaning recall, respectively, after 192 minutes of viewing. The learning rate of meaning recall is comparable to that of Puimège and Peters (2019), who reported a learning gain of 3.6 items at the meaning recall mastery level. However, this comparison is little problematic due to differences in the number of phrasal verbs and the length and of input adopted in both studies. Unlike the present study, which targeted 21 phrasal verbs through extensive viewing of an audiovisual series, Puimège and Peters' (2019) used a 30-minute clip of a TV program and tested 20 different types of multiword items, only four of which were phrasal verbs. However, the learning uptake on the meaning recall test (about four items) in the present study is smaller than that reported in the follow-up investigation of Puimège and Peters (2020) – on average, their participants learned about seven new target items.

Nonetheless, the vocabulary uptake reported in the present study might underestimate the actual vocabulary gains that could have occurred through the experiment. Firstly, phrasal verbs that occurred only once (e.g., kick out, cut off) in the series were not included as target items. These items might have been learned but not assessed, given that a TV series presents both verbal and visual forms of input, and the chances of acquiring new items increase with one exposure (Rodgers, 2016). Also, the participants may have developed other knowledge dimensions of the target phrasal verbs that have not been tested. For these reasons, it can be reasonably assumed that the approach of incidental word learning through a TV series is beneficial for phrasal verb development.

The findings of the second research question draw attention to the role repetition plays in word learning through audiovisual resources. Specifically, the results demonstrated that repetition had an impact on the target phrasal verb uptake. Better recall and recognition patterns were observed for the items that have been met most often. Since this study is the first to adopt multiple viewing sessions to take the repetition of phrasal verbs into account, it is difficult to compare its results to those of previous research examining multiword items. Dang et al. (2022) and Majuddin et al. (2021) are the only researchers who have studied the effect of repetition on multiword item uptake by viewing audiovisual materials. These studies, however, only examined the effects of repetition in a one-off learning session, and so they reveal little about the role repetition plays in multiword item learning by viewing multiple episodes.

Nonetheless, the present study's findings align with preceding viewing research examining individual word learning, which found that the frequency of repetition positively affected new word learning (Peters & Webb, 2018). Thus, the emerged findings of this study add to the scarce amount of research investigating the effect of repetition. It seems that when L2 learners frequently meet L2 words, they are likely to notice them and acquire them. One interesting result that emerged from this study was that repetition influenced the learning of form recognition and meaning recall differently. In particular, the findings indicated that meaning recall was impacted slightly more by repetition than form recognition. Fewer encounters were needed to develop the knowledge of form. Conversely, the participants needed multiple repetitions to develop knowledge of meaning. These conflicting findings may be attributed to the narrow range of frequency. Incidental vocabulary research has not reported that frequency has an effect when words are close in their frequency (Webb & Chang, 2015). The results seem to suggest that different knowledge dimensions might need different amounts of repetition, which supports the same findings reported in some reading and listening studies (e.g., Pellicer-Sánchez & Schmitt, 2010; Van Zeeland & Schmitt, 2013).

Limitations and Future Directions of Research

Despite the distinct contributions that the present research makes to the literature concerning how watching a complete season of a TV series influences the learning of phrasal verbs, a range of limitations need to be addressed in future studies. Firstly, the number of target phrasal verbs ($n = 21$) was limited. A larger number of the target items is desirable to better understand the effects of a TV series on phrasal verbs. More research is also needed to investigate how viewing of a long TV series can develop incidental multiword item knowledge. Another limitation pertains to the limited number of the examined word knowledge types. The study only assessed the form and meaning of the phrasal verbs, which may underestimate the extent of the learning that may have occurred. Future research could make use of multiple measures to assess the learning of other essential levels of item knowledge, such as form recall, meaning recognition, and use.

CONCLUSION

This study provides some useful insights into how watching a TV series affects the learning of phrasal verbs. Firstly, the results demonstrate that viewing an entire season of a TV series contributes to incidental learning gains of phrasal verbs. Particularly, the experimental group acquired around nine novel phrasal verbs at the form knowledge mastery level and approximately four items at the level of meaning recall. The research findings support the recommendation of extensive viewing as a potential source for enhancing L2 learners' lexical item learning and contribute addition-

al evidence that assumes that viewing a TV series is beneficial for incidental learning of phrasal verbs. In addition, the study provides additional affirmative evidence for the role of frequency of repetition in phrasal verb learning via a TV series. While the findings show that phrasal verb gains demonstrated in both the form recognition and meaning recall tests correlate significantly with repetition, the role of repetition in developing meaning knowledge is greater.

DECLARATION OF COMPETING INTEREST

None declared.

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APPENDIX A

FORM RECOGNITION TEST

Choose the correct phrasal verbs you heard in the series. There is only one correct answer in each row. Alternatively, choose "I don't know" if you are not sure.

1.	a) Pile up	b) pile on	c) pile at	d) I don't know
2.	a) Pull down	b) pull out	c) pull into	d) I don't know

APPENDIX B

MEANING RECALL TEST

Write the meanings (definition, synonym, or L1 translation) of the following phrasal verbs as they were presented/shown in the series. Some of these phrasal verbs have more than one meaning, in that case please write as many meanings as you can recall from the series. Tick (✓) I don't know if you are not sure.

Phrasal verb	Meaning	I don't know
Seal off		
Let down		