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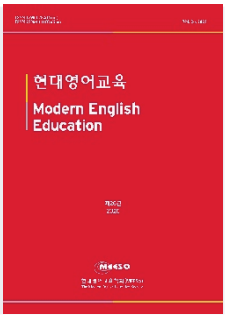

An Analysis of Target Vocabulary Word Repetitions in Intermediate ELT Textbooks

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Abstract

This study analyzed the repetitions of target vocabulary words in intermediate English language teaching textbooks, by examining three sets of words from ten different textbooks to investigate the quantity of overall repetitions, delayed repetitions, and the cognitive processes of the repetitions. In addition, the research examined whether the location of where the words were introduced in the book impacted the number of repetitions, delayed repetitions, or cognitive processes. The findings revealed the average number of repetitions (3.7) to be below the recommended minimum of five to eight. Notably, around 50% of the words were repeated only once or twice. Furthermore, it was found that delayed repetitions were unlikely to occur with approximately 80% of words never repeating after the chapter in which they were introduced. The analysis also found the books strongly focused on receptive cognitive processes, with the cognitive process of varied receptive use most prominent. In turn, there was a significant absence of elaborative cognitive processes. Last, the study found that words introduced in the beginning of the books were repeated in a distinctly different manner from words introduced as target vocabulary words in the latter part of the books.

INTRODUCTION

Obtaining a broad vocabulary has always been an important part of one's foreign language education, and for good reason (Schmitt, 2008). An expansive knowledge of a foreign language's vocabulary will better assist in comprehending written and listening content while also enabling learners to better produce the language verbally or in writing (Stæhr, 2008). Traditionally, vocabulary learning has been classified as occurring either incidentally or intentionally. While incidental vocabulary learning refers to vocabulary learning that occurs as a byproduct of activities that are not explicitly designed for vocabulary learning, intentional vocabulary learning refers to the learning that occurs during those activities explicitly designed for vocabulary learning (Hulstijn, 2001). While incidental vocabulary knowledge may be acquired through activities such as extensively reading graded readers (Waring & Takaki, 2003), many students rely on intentional vocabulary instruction in order to learn additional vocabulary words and expand their vocabulary in a foreign language (Nation, 2001;

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Schmitt, 2008). When doing so, the intentional vocabulary instruction process typically includes the intentional teaching and practicing of target vocabulary words (TVWs) (González-Fernández & Schmitt, 2017), defined in this study as the appropriately difficult and useful vocabulary words that a book is designed to intentionally teach to its students.

When such intentional instruction occurs, each "repetition," that is to say, each occurrence of the TVW, helps to strengthen form-meaning connections and a deeper understanding of the word (Webb, 2007). While numerous aspects of vocabulary instruction impact learning, some of the most prominent impacts relate to the number of repetitions and the cognitive processes associated with each repetition (Webb & Nation, 2017). Although no exact consensus has been reached, learners typically require at least five to eight repetitions with the TVW in order for the word to be learned (Nation, 2001; Webb, 2007). Furthermore, in order to enhance long-term retention, TVWs should be repeated in a delayed manner after a significant amount of time has passed from the original introduction (Cepeda et al., 2008; Nation, 2001). Lastly, the cognitive processes associated with the repetitions are also known to have an impact on learning (Nakata, 2011). Considering the value of vocabulary instruction, efforts should be made to investigate the number of TVW repetitions and their cognitive processes within vocabulary instruction. One way of doing so is by analyzing foreign language instruction textbooks, since foreign language teachers often rely on their textbooks for instructional materials (Brown, 2014).

Surprisingly, to date, very limited research exists into the quantity of overall repetitions, delayed repetitions, or cognitive processes of TVW repetitions within foreign language textbooks. Furthermore, no previous study has investigated the relationship between the initial placement of the TVW within the book (i.e., where the word was introduced as a TVW) and the quantity of overall repetitions, delayed repetitions, and cognitive processes that TVW has. Simply put, TVWs from chapter one may have more overall repetitions and delayed repetitions than TVWs from chapter eight, by virtue of chapter one's TVWs having many more subsequent chapters' worth of content, such as reading texts or listening activities.

In consideration of these aforementioned research gaps, the current study is designed to better understand the overall quantity of overall repetitions, delayed repetitions, and cognitive processes of TVWs in English language teaching (ELT) textbooks. The current study is also designed to address the location of TVWs and its impact on repetitions, delayed repetitions, and cognitive processes. Since these strands of inquiry have not been studied before, the current study aims to elucidate a number of important aspects pertaining to vocabulary instruction. As a result of this research, an increased understanding of this topic would be beneficial to authors of future foreign language textbooks. Furthermore, teachers of current textbooks may also benefit from this research's analysis by better knowing whether additional vocabulary activities should be supplemented or whether superfluous activities may be skipped.

LITERATURE REVIEW

Quantity of Vocabulary Repetitions

Overall Repetition Quantity

Perhaps the most well-documented element of effective vocabulary instruction is the need for multiple repetitions of the TVW. While researchers agree that multiple repetitions are necessary for learners to learn the word, there is a lack of consensus regarding exactly how many repetitions are needed for "vocabulary acquisition," or vocabulary learning. Nevertheless, there is a widely held belief that a learner's likelihood of learning a word increases with the number of repetitions they encounter (Schmitt, 2008). However, this notion ignores that the law of diminishing marginal returns is applicable for each subsequent repetition (Nation, 2017) as well as the fact that teachers, and foreign language teachers especially, have a finite amount of class time. Thus, while very large numbers of repetitions are theoretically better, such uses of class time may entail a lost opportunity cost of time, which might be more effectively spent on other aspects of the foreign language. Considering this, the debate tends to focus on the minimum number of repetitions required for the learners to acquire the TVW.

To date, a number of studies have analyzed the necessary number of TVW repetitions. The majority of studies found the necessary minimum number of repetitions to be somewhere in the range from five to eight repetitions (Cameron, 2001; Crothers & Suppes, 1967; Horst et al., 1998; Kachroo, 1962; Tinkham, 1993; Webb, 2007), as roughly echoed by Nation (2001) in stating that many studies suggested five to seven repetitions should be required. However, outliers exist with a couple studies finding four repetitions are sufficient (Laufer & Rozovski-Roitblat, 2011; Teng & Xu, 2025) and other studies finding 10 to 20 repetitions may be needed (Nation & Wang, 1999; Waring & Takaki, 2003). However, the mere number of repetitions is not solely important, the quality of the repetition is also important. Teng and Xu found that productive

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repetitions (e.g., sentence writing) had a significantly greater impact on learning rates than receptive repetitions. Similarly, Laufer and Rozovski-Roitblat (2011) found that repetitions including word-focused exercises such as definition-matching, synonym-selection, and sentence construction, resulted in the highest vocabulary gains. In conclusion, while the minimum number of repetitions appears to be in the general range of five to eight, the type of repetition clearly also has an impact. Indeed, it appears productive activities, or activities that actively engage the learners with the TVWs, have a noticeably more effective result.

Given the aforementioned importance of multiple repetitions, it is necessary to analyze whether learners actually encounter them in sufficient numbers. While an analysis of actual in-class evidence is ideal, modern textbooks are also appropriate in this regard since foreign language teachers often rely on their textbooks for instructional materials (Brown, 2014). Before reviewing the previous research on textbooks and repetition quantities, it is useful to first establish the general approach of modern foreign language textbooks. Modern foreign language textbooks are typically organized in accordance with a function-notional syllabus and divided into chapters or units of different topics or themes such as travel, food, or health (Fabian et al., 2019). In terms of the vocabulary within lessons, the initial introduction of TVWs tends to be located at the beginning of a lesson or after introducing a related communicative or grammatical item. The sequence typically starts with explicit presentation, where TVWs are introduced through definitions, visuals, or examples, followed by various activities (Skela & Burazer, 2021). Such activities are intentional vocabulary learning activities because they force the learners to attend to the vocabulary word (Criado & Sánchez, 2009). Within the same chapter, subsequent reading, listening, and communicative activities are also frequently included, which are designed to provide further opportunities for vocabulary practice while simultaneously practicing listening, speaking, reading, and the grammar that is frequently introduced in the chapter. In fact, it is the reading passages from which the vocabulary of the chapter is often originally selected by the books' creators (Schmitt, 2019). These activities are categorized as incidental vocabulary learning activities in that though the TVW is repeated, the learners' main attention is elsewhere. Such incidental activities are also important for vocabulary acquisition in that they develop lexical consolidation and automaticity with the word (Criado & Sánchez, 2009). In summary, modern textbooks do not take a lexical approach to language instruction but instead provide instruction regarding numerous facets of the foreign language, such as reading, listening, grammar, and speaking. However, through the combination of intentional activities along with the deliberate inclusion of the TVW in incidental activities, modern textbooks seem to be generally designed to include numerous repetitions of the TVW within each chapter.

Unfortunately, relatively little previous research has examined the number of target word repetitions within foreign language books. Although numerous studies (Bergström et al., 2025; Criado & Sánchez, 2009; Matsuoka & Hirsh, 2010) have investigated the repetition rates of words in general (i.e, not TVWs but all words), only one study has investigated the repetitions of TVWs specifically. In her study, Bakkal (2016) analyzed three different ELT textbooks as well as their workbooks and tallied the number of repetitions of approximately 170 TVWs from each book, which included TVWs from various chapters. The findings showed approximately 25% of the words were repeated 0-4 times, which was deemed insufficient by the researcher, since she considered five repetitions to be the standard minimum number of necessary repetitions. Furthermore, she also found significant differences between the different textbooks, which leaves the issue of which one, if any, is representative of books in general unresolved.

Delayed Repetitions

A growing body of research has emphasized that not only the number but also the timing of vocabulary encounters is crucial for durable acquisition. In particular, the earliest repetitions (i.e., those that occur soon after the initial exposure) play a critical role in the retention of newly learned material. This is because the majority of forgetting happens shortly after a lesson, so reviewing or repeating newly acquired vocabulary within a short interval helps prevent the steepest initial loss (Baddeley, 1990). To offset this early decline, it is imperative for learners to encounter the word again very soon after the first exposure (Schmitt, 2007). Indeed, the empirical evidence of Pavlik and Anderson (2008) found that for second language learners the second repetition should occur quickly after the first repetition to maximize retention. Moreover, this period of concentrated practice is not limited to the second repetition alone. Both Schmitt (2008) and Nation (2005) argue that the first few encounters with a word should take place within a short time frame. In doing so, these initial repetitions serve to work against the newly learned TVW from being quickly forgotten.

Following these crucial initial encounters, delayed or spaced repetitions become central to vocabulary retention. A delayed repetition refers to revisiting a TVW after a significant period of time has passed since previous repetitions, whereas massed practice refers to encountering them repeatedly within a short timeframe, such as previously outlined with the recommended approach to the initial repetitions. To be clear, the exact timing of what constitutes a delayed repetition is not stipulated in the previous literature. However, considering Nation (2005) recommends the initial repetitions should occur within days, it

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is safe to assume that the delayed repetitions are advised to occur after a larger number of days or even weeks have passed. Although massed practice alone often produces faster short-term gains, previous research suggests that including delayed repetitions yields superior long-term retention (Seabrook et al., 2005; Rohrer, 2015). For example, Yan and Zhou (2023) found that English as foreign language learners retained vocabulary more effectively when they encountered words after delays rather than only within the initial learning session. Varela (2020) corroborated these findings in a longitudinal classroom study, showing that students who engaged in delayed repetitions exhibited stronger vocabulary retention over time. Similar results can be found in Schuetze (2015), Bloom and Shuell (1981), and Nakata and Suzuki (2019). Collectively, these studies highlight that while initial, closely timed repetitions stabilize newly learned words, including delayed repetitions is essential for consolidating vocabulary in long-term memory.

In ELT and other foreign language textbooks, the principle of concentrated early repetitions is often implemented within the chapter or unit where the TVW is first introduced. Research has shown that TVWs in commercial textbooks are typically repeated multiple times within the same lesson through a variety of activity types (Criado & Sánchez, 2009). As previously mentioned, these intentional vocabulary activities such as matching exercises, gap-fills, controlled dialogues, and comprehension tasks are deliberately designed to provide several encounters with TVWs in quick succession, fulfilling the need for closely timed initial repetitions. Furthermore, within the same chapter, the implicit vocabulary practice included in the listening, reading, and speaking activities further increase the number of repetitions of the TVW. Clearly, this structure mirrors the theoretical recommendations of Schmitt (2008) and Nation (2005) by offering the initial repetitions within a short interval - one lesson, chapter, or unit. In short, by design, textbooks frequently accomplish providing the initial repetitions in quick order. However, it is less clear if textbooks accomplish the goal of providing delayed repetitions. To date, only one study has investigated how often TVWs are repeated in a delayed manner, defined in her study as repeating in a chapter subsequent to where it was first introduced. Tschichold (2012) analyzed a French language textbook and found a very low level of delayed repetitions: of the 265 TVWs from chapters 1 and 2, slightly over 30% were never repeated in later chapters, another 20% appeared only once, and 15% were repeated twice. Thus, the findings from the one previous related study highlight a gap in textbook design, suggesting that opportunities for spaced repetitions of vocabulary are often insufficient.

Cognitive Processes of Repetitions

However, the number of overall repetitions and inclusion of delayed repetitions are not the only important factors for vocabulary learning. Recent research and effectiveness-predicting models have also emphasized the role of cognitive processing during each repetition (Nakata, 2011). The four categories of cognitive processes are those of noticing, retrieval, varied use, and elaboration (Nation, 2015). Noticing refers to simply noticing the word and acknowledging it is a useful language item (Nation, 2001). In the case of deliberate instruction, such noticing may occur when the learner comes across a highlighted version of the word or when the teacher calls attention to a word (Richards, 2015). The second cognitive process is that of retrieval and is where the learners recall what the learner previously noticed about the word (Nation, 2017). Retrieval can be classified as either productive retrieval, which involves attempting to communicate the meaning of the word through producing its spoken or written form, or receptive retrieval, which pertains to encountering the form and having to retrieve its meaning (Nation, 2001).

The third cognitive process is that of varied use and is also divided along productive/receptive lines into varied productive use and varied receptive use (Nation, 2001). In this category, the word is either being produced via speaking or writing in a meaningful manner in the case of varied productive use or receptively encountered in a new form or context while reading or listening in the case of varied receptive use. Interestingly, numerous communicative activities such as information gap activities, task-focused speaking activities, role-plays, etc. are unique in that when students pair up to communicate with one another to complete the task, one student's varied productive use becomes their partner's varied receptive use (Nation, 2001). Lastly, an important distinction should be noted that the varied use must be novel. If the word is being repeated in the same way as it had been, either productively or receptively, the related cognitive process is that of productive retrieval or receptive retrieval. Accordingly, the re-listening or re-reading of previously encountered input constitutes receptive retrieval, while tasks that require a learner to repeat what he/she previously said, such as that of the 4-3-2 activity, would constitute a productive retrieval (Webb & Nation, 2017).

The last process pertains to elaboration which involves higher-order or contemplative thinking skills pertaining to the word (Nation, 2015). Indeed, examples of elaboration activities are more complex, such as semantic mapping, where learners may link synonyms, antonyms, or categories of the TVW (Nation, 2017). Another example is the keyword method, which is a mnemonic tool where the learners use their imagination to create a vivid mental image using the sound and imagery of the target word. For instance, if an English speaker was learning the Spanish word "carta," meaning a letter, the learner may

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imagine a cart full of letters. Indeed, as mentioned, elaboration can also be productive or receptive, depending on whether the elaborative use is produced or received by the learner (Beaton et al., 2005).

Before proceeding to the models which utilize some of the aforementioned cognitive processes, a few nuances must be addressed. First, the literature makes no recommendations that repetitions must progress in a strictly linear manner from noticing to retrieval to varied use to elaboration. However, in order for the learner to retrieve, use, or elaborate on a previously noticed vocabulary word, they must have experienced a repetition that promotes "noticing" processes. Thus, by definition, the cognitive process of noticing must be the incipient cognitive process. Second, although the previous examples of the four various cognitive processes implied only one process was being activated, that is rarely actually the case. Indeed, as Webb and Nation (2017) point out, the cognitive processes are largely cumulative and often occur in tandem when a repetition occurs. Nevertheless, in most repetitions, despite elements of other cognitive processes, there is one process that is key or primary (Nation, 2017). Third, careful attention should be paid to both the productive sub-classifications as well as that of deeper cognitive processes. Previous studies have indicated that activities associated with productive retrieval cognitive processes appear to be more effective than receptive retrieval, and this finding also appears to apply to the relative superiority of varied productive use and productive elaboration over varied receptive use and receptive elaboration, respectively (Aizawa et al., 2003; Webb, 2009; Yanagisawa, 2016). Furthermore, deeper cognitive processes have been linked to better learning and retention (Yanagisawa & Webb, 2021), indicating that the deeper cognitive process of elaboration as well as varied use would be of particular importance. Last, in order to proceed in a convenient manner, abbreviations of the cognitive processes will now be implemented for the latter three cognitive processes. In addition to the parenthesized abbreviations of productive retrieval (PR) and receptive retrieval (RR), which have been adopted from Hazrat and Read (2022), this study will also implement the following parenthesized abbreviations for varied productive use (VPU), varied receptive use (VRU), productive elaboration (PE), and receptive elaboration (RE).

Recently, research has been conducted in order to create models that can predict or determine an activity's effectiveness in terms of vocabulary acquisition, the most prominent of which are the Involvement Load Hypothesis and Technique Feature Analysis. In both models, the relevant cognitive processes play a significant role in determining the activity's score, or predictive effectiveness. In terms of the Involvement Load Hypothesis (ILH), in more recent models of the ILH, one of the three criteria of distinguishes between PR from RR, with the former receiving two points and the latter receiving one point (Hazrat & Read, 2022). Another criterion's score is higher when a learner produces the word in original contexts such as discussion, sentence writing, or composition writing, which is clearly related to the cognitive processes of varied use and potentially elaboration, whereas the evaluation score is lower when having to complete a fill-in-the-gap exercise, which is related to retrieval (Hazrat & Read, 2022). In contrast to ILH, Nation and Webb's (2011) Technique Feature Analysis (TFA) adopts a five-criteria approach, with three of criteria being explicitly related to the cognitive processes of noticing, retrieval, and generation. Interestingly, in both the TFA and ILH, the relative value of PR is recognized, with PR receiving more points than RR. In terms of generation, the cognitive processes of VPU and VRU are also included, with the former generating more points than the latter, which aligns with the previously outlined research. The cognitive process of elaboration appears to be lumped in with VRU and VPU within the generation category, in that, at this time, varied use and elaboration were considered one process and were yet to be distinguished. In concluding the review of the TFA and ILH, it is imperative to isolate the fact that, holding all other criteria equal, activities garnering deeper cognitive processes are associated with higher TFA scores and higher ILH scores, and would thus be more predictive of effectiveness.

While the ILH and TFA are indeed informative regarding identifying effective activities, it appears a more fine-grained approach to each individual repetition may also be informative. Simply put, while the ILH and TFA assign an overall effectiveness of an activity, which includes repetitions, it may be oversimplifying the cognitive processes by assigning one cumulative score for activities that may engender multiple distinct cognitive processes, which may differ for the students involved. For example, activities such as a one-way information gap activity may result in the two partners experiencing different cognitive processes as each partner may produce and observe TVWs in a manner distinct from their partner. In short, it is unclear if one collective score would properly describe the fact that multiple different cognitive processes are at play or the fact that learners are experiencing distinctly different cognitive processes. In conclusion, while ILH and TFA are clearly useful in evaluating activities at large, a more fine-grained analysis of each individual repetition's cognitive process may also be informative.

Considering the aforementioned value in isolating each repetition's cognitive processes, relatively little research has been conducted. The only research to date that has examined the cognitive processes of individual repetitions is that of the previously introduced study by Bakkal (2016). In addition to reporting the overall number of repetitions, she also investigated the cognitive processes associated with the repetitions. She found that the process of retrieval was most common but identified a lack of repetitions engendering the deeper cognitive processes. As previously addressed, the delineation between varied use and elaboration is relatively new, and her research also lumped these two categories together into the

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label of generative use. Though she found this overall category to be lacking, it was unclear how much pertained to the cognitive processes of varied use or elaboration. Furthermore, although retrieval, varied use, and elaboration can be further categorized into productive and receptive varieties, with the productive type being associated with greater effectiveness, her research did not distinguish between productive and receptive types.

In summary of the previously outlined literature and previous research, a research gap is evident. Despite numerous studies into the repetitions of all the words within foreign language textbooks, only one study (Bakkal, 2016) has investigated the actual TVWs. However, this study included three books and did not stipulate how repetitions were recognized (i.e., if directions read by students also constituted repetitions). Furthermore, only one study of French language textbooks (Tschichold, 2012) and none into ELT textbooks examined the presence of delayed repetitions. Lastly, only Bakkal (2016) investigated the cognitive processes of the various repetitions, but as previously mentioned, this did not include the cognitive process of elaboration. Perhaps, more importantly, it did not distinguish between productive and receptive cognitive processes. Considering the strong empirical evidence that productive practice is more effective than receptive practice, research that also delineates between productive and receptive cognitive processes may lead to a more nuanced understanding of how TVWs are practiced.

In addition, no previous research has investigated whether the location of the target word's incipient repetition is associated with the number of overall repetitions, and delayed repetitions, in particular. In short, words that are introduced earlier in the book (e.g., chapter one) have many more subsequent chapters' worth of content to appear again than words that are introduced later in the book. For example, in a coursebook consisting of 12 chapters, the TVWs in chapter one would have 11 subsequent chapters' worth of content such as reading texts or listening activities to reappear. On the other hand, the target words from chapter 8 would only have four subsequent chapters' worth of content to be repeated. A better understanding of whether differences occur according to the original location would assist future coursebook creators to ensure target words are properly repeated. Furthermore, a better understanding of TVW repetitions would also aid teachers who could be better aware of coursebook deficiencies and modify their vocabulary instruction accordingly.

RESEARCH METHOD

As previously outlined, this study is organized to address the following three research questions:

1) How many repetitions and delayed repetitions of TVWs are there in ELT textbooks?

2) What are the cognitive processes associated with the repetitions?

3) Does the initial location of the TVW affect the quantity of repetitions, delayed repetitions, or cognitive processes?

Coursebook Selection

In order to provide a representative sample of frequently used ELT textbooks, the catalogues of five major international textbook publishers were acquired. In order to make sure that the books were not outdated, no books were selected with a publication date before 2010. Furthermore, to provide consistency, only pre-intermediate and intermediate-level books focusing on four skills designed for adult learners were considered. Thus, grammar-focused books or books that focused on one specific skill were excluded. While reading-focused textbooks may be designed to increase input exposure and provide numerous repetitions of the TVW, four-skills ELT textbooks are the dominant paradigm in ELT textbooks (Burns & Siegel, 2018) and thus the most widely used. Therefore, in analyzing four-skills ELT textbooks, the researchers are attempting to most accurately sample ELT instruction in general. Having compiled a list of appropriate books, the researchers examined the books to ensure that a clearly defined list of TVWs existed. Surprisingly, a significant portion of the books did not clearly stipulate the TVWs, and thus, these books were excluded. Of the remaining books, a process of semi-random selection occurred in which 10 books were chosen, while also ensuring that no one publishing company was disproportionately represented.

Having selected the books, the next step pertained to the actual vocabulary words that would be analyzed. In order to provide a broad sample from each textbook, it was determined that three sets would be selected from each book. The first set (set 1) from each textbook came from the first unit/chapter of the textbook. (For simplicity's sake, the word "chapter" will be used to describe chapters/units.) The second set (set 2) came from a chapter approximately ⅓ of the way through the

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book, and the third set (set 3) came from a chapter approximately ⅔ of the way through the book. In effect, since the chosen books had either 10 or 12 chapters, the first chapters were consistently recorded as set 1 of the current research, chapters 4 or 5 were recorded as set 2 in books with 10 or 12 chapters, respectively, and chapters 7 or 9 were selected for set 3 in books with 10 or 12 chapters, respectively. To be clear, the books chosen for this research varied widely in how the lessons were constructed. Some books had one stand-alone chapter with one collection of TVWs. Other books had one stand-alone chapter but multiple collections of TVWs. Yet, other books had lessons within units which sometimes did and sometimes did not include a collection of TVWs. In total, this approach resulted in a preliminary set of 659 TVWs for the current study.

However, in order to provide a measured analysis, it was determined that further refinement would be necessary. Although all books were of a pre-intermediate or intermediate level, it appeared numerous TVWs were problematic because they were either too basic or too topic-dependent. The more basic TVWs are more likely to repeat by virtue of naturally occurring at higher rates, while topic-dependent TVWs would be less likely to reappear in subsequent chapters focused on different topics. In order to provide a systemic refinement, the researchers consulted Paul Nation's list of headwords from the British National Corpus (BNC) - Corpus of Contemporary American English (COCA) list available at https://www.wgtn.ac.nz/lals/resources/paul-nations-resources. In this list of most frequently appearing headwords, the words are organized into bands (or levels) based on word frequency. The words within bands one and two are the most frequent and essential words, and thus, are most likely to reappear naturally. Thus, any words pertaining to band one or two from the preliminary list of 659 TVWs were excluded. Likewise, all words pertaining to band six, seven, or onward were also excluded in that these words were probably unlikely to appear in other chapters about different topics. As a result, 120 total TVWs were excluded, with the remaining 539 TVWs suitable for inclusion in this study. An overview of the books and number of TVWs per set that are included in this study are displayed below in Table 1.

TABLE 1
List of ELT Textbooks for Current Study

Book	Book (Author)	Chapters/Units Examined	TVW per Set			
			Set 1	Set 2	Set 3	Total
1	*Close-up Pre-Intermediate* (Healan & Gormley, 2016)	1-5-9	23	23	17	63
2	*Cutting Edge Intermediate* (Cunningham et al., 2013)	1-5-9	32	17	4	53
3	*Face2Face Intermediate* (Redston & Cunningham, 2014)	1-5-9	25	24	12	61
4	*Gateway B1+* (Spencer, 2016)	1-4-7	29	18	44	91
5	*Navigate Pre-intermediate* (Krantz & Norton, 2015)	1-5-9	19	34	36	89
6	*Passages 2* (Richards & Sandy, 2014)	1-5-9	11	11	6	28
7	*Smart Choice 2* (Wilson, 2016)	1-5-9	8	7	5	20
8	*Speakout Intermediate* (Clare & Wilson, 2015)	1-4-7	25	28	24	77
9	*Touchstone 3* (McCarthy et al., 2014)	1-5-9	15	7	9	31
10	*World English 2* (Chase & Johannsen, 2019)	1-5-9	9	9	8	26

Data Collection

Having established the TVWs to be analyzed, the data collection began. First of all, all textbooks were processed through an optical character recognition (OCR) program in order to make it possible to search for specific words. Next, search and locate functions on the PDF viewing program were used to identify each repetition of the TVWs. Having identified a repetition of the word, a number of data points regarding the repetition were recorded, such as the order of the repetition, the chapter of the repetition, and the exact context in which it existed. While this approach was expansive, allowed for two easily identifiable issues. First of all, if the answer to a question included a vocabulary word, the book would not have that word be searchable since the students would need to answer that question. To address this weakness, the teacher book guides were also searched with the aid of OCR programs. Secondly, there were many instances where it was ambiguous if a repetition would occur or not. For example, if a chapter's TVWs pertain to household furniture (e.g., sofa, chair, lamp, etc.), an activity where learners describe their living room to a partner would likely use some of the TVWs, but none of the words would be definitely guaranteed to be used. While these tasks are likely to promote additional repetitions, the researchers

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could not consistently assume these repetitions would occur. In doing so, a clear limitation in the current study was created. In short, the findings may underestimate learners' actual experiences, and that, in classroom contexts, more repetitions of the TVWs may occur which are not included in the current study. Nevertheless, excluding theoretically potential repetitions and including only certain repetitions was determined to be a more robust research approach than including repetitions that may not actually occur.

The third issue pertained to the tallying approach for the cognitive processes of the TVW repetitions. In some cases, partners would interview each other with a list of interview questions where a TVW occurs. Presumably, this would result in one student asking the question while the other student listened. Then, the student would respond in a way including the vocabulary word, and the person who originally asked the question would listen. Thus, even without any further negotiation of meaning, each student would have experienced two repetitions of the TVW, though it should be noted that the exact cognitive processes of the TVW repetitions are different for the two partners. The interviewee would have experienced a VRU (by listening to the question) as well as a VPR (by answering the question), while the interviewer would have experienced a VPR (by asking the initial question) and a VRU (by listening to their partner's response). In essence, the activity would be associated with two repetitions for each learner (i.e., one VPU and one VRU). Similarly, in information-gap activities where one partner must communicate information that their partner does not know, one learner would provide just one productive repetition, such as VPU, while the other learner would provide a receptive repetition, such as VRU. This issue was accounted for while recording the repetition in the following simple manner. Since one partner provided only a VPU while the other partner only encountered a VRU, the VRU and VPU repetition tallies were discounted to have half a repetition. This was deemed to be the most accurate way of reflecting how this activity contributed to repetitions of the vocabulary words.

The aforementioned data collection process provided data about all repetitions of all words as well as in which chapter they were located. As such, these data points corresponded to the first research question. In order to address the second research question about the cognitive processes related to TVWs, an evaluation of which process was entailed was required. To do so, both researchers served as independent raters. The evaluating process occurred as follows. One rater served as the initial evaluator and compiled the instances of all repetitions of the different TVWs. To ensure accuracy, each chapter from which the TVWs appeared was meticulously analyzed to understand exactly if and how the TVWs were included. This required the evaluator to essentially simulate the chapter with the aid of the teacher book. To ensure any and all repetitions were accounted for within the chapter at hand, the evaluator searched for each vocabulary word in the OCR-enabled document. While such special attention was placed on the specific chapter where the words are originally presented, all ensuing chapters received a similar level of close scrutiny, albeit without having simulated every lesson via the teacher's book. In short, in the ensuing chapters, the words were searched for, and when found, a similar mini-simulation occurred while consulting the teacher's book. Having located all the repetitions, the initial rater provided the list to the second rater, and then each rater independently examined each vocabulary word's repetitions and evaluated them as one of the previously mentioned basic categories: N (noticing), PR, RR, VPU, VRU, PE, or RE. Each rater made a determination about the "primary process" related to each vocabulary repetition. Secondly, as long as the first appearance was decontextualized and appeared to make the learners "notice" the word, this was considered the "noticing" repetition. Having already 'noticed' the word from this initial repetition, all subsequent repetitions would meet the other categories of retrieval, varied use, or elaboration. In effect, this typically resulted in each word having the first repetition of the word as its one 'noticing' repetition. However, on occasion, the words appeared before the 'noticing' activity in the chapter in which the word was a TVW. Since this phenomenon occurred frequently, such instances were noted and recorded; however, all occurrences of the word before the "noticing" repetition were not included for analysis.

Furthermore, in order to provide a more nuanced understanding of precisely how these processes occurred, a number of more defined choices were also provided. These additional categories represented sub-categories or unique phenomena where learners in communicative activities would experience the repetitions differently. For example, in terms of sub-categories, the raters could also choose a "repeated version of PR," which would designate an activity where the learners are tasked with saying a repetition in a repeated fashion, such as the famous 4-3-2 activity. Simply put, it is the second time the learner was saying that repetition this way. Similarly, if a learner had to listen to an audio file including a repetition for the second time, the first time would be considered VRU, whereas the second time would be a case of a "repeated version of RR."

In terms of cases where learners would encounter a mix of repetitions, such as the previously mentioned case of interview activities or information-gap activities, a number of possible options were available to the raters. For example, the raters could choose an option where both learners would encounter a VPU and VRU, such as in a communicative task involving the vocabulary word, as previously explained. Similarly, an elaborative discussion activity would make both learners experience RE and PE. On the other hand, if the learners were completing a split information task where the vocabulary word usage was not reciprocal but one-way, this would be considered .5 for VRU and another .5 for VPU. Another scenario

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would require a learner to repeat what they had previously said, such as in the well-known 4-3-2 activity. Since the subsequent production is what was just said and said by only one of the partners, this repetition would count as .5 for PR (repeated version) and .5 VRU. A similar option was provided if the repeated contents were of an elaborative nature.

As with every research study, the current study's data reliability was important for establishing credible results. In terms of the first question pertaining to overall repetition quantity and delayed repetition quantity, the data points are decidedly objective, resulting in no need for any reliability analysis. However, in terms of the second research question, the raters' determinations of the different repetitions' cognitive processes demanded measures to ensure reliability. Overall, the two raters were in agreement approximately 96% of the time. In total, when computing reliability analysis, the two raters' judgements resulted in a reliability score of .95 in terms of Cohen's Kappa. This result clearly surpassed the typical benchmark of .8 for excellent reliability. For the 4% of cases that resulted in a lack of consensus between the two main raters, a third and tie-breaking rater was consulted. In such cases, a third evaluator was consulted who is a specialist in the field of second language acquisition with extensive experience in both teaching vocabulary instruction as well as teacher training. The third evaluator was first trained on the four processes by reading the relevant parts of the literature review section of this party. Then, the third evaluator was presented with the exact repetition under review and then had to choose between the two conflicting assignments by evaluators 1 and 2. As a result, the third rater's choice was thus recognized as the process associated with that repetition for the purpose of this research. The third research question pertained to analyzing the data points concerning research questions one and two, in terms of the set in which the TVWs originally appeared. Thus, no additional measures for reliability would be necessary for the third research question.

Data Analysis

To answer the first question regarding the general number of repetitions, a simple tally was conducted for each TVW. Descriptive statistics were utilized as well as an analysis of the number of words that were repeated one time, two times, three times, etc. This approach continued by tallying the number of words that were repeated 4, 5, 6, 7, 8, 9, and 10+ times. Such a calculation was included for all 539 words as well as by book. To analyze the quantity of delayed repetitions included, a similar approach of descriptive statistics alongside a tally was utilized. To address the second question, a preliminary tally of each of the seven processes (i.e., Noticing, PR, RR, VRU, VPU, PE, and RE) was recorded. In order to determine if these tallies were significantly different, a number of subsequent calculations were conducted. First, the tallies of retrieval (consisting of PR and RR), varied use (consisting of VPU and VRU), and elaboration (consisting of PE and RE) were compared using a Mann Whitney U test. Such a statistical analysis is appropriate in that this analysis measured the quantifiable number of cognitive processes each TVW was associated with. Since three pairwise chi-square tests (retrieval vs. varied use, varied use vs. elaboration, and elaboration vs. retrieval) were conducted, to control against familywise Type I errors, the Bonferroni correction was applied ($\alpha = .05/3 = .017$). Furthermore, analyses regarding receptive and productive processes were conducted by comparing PR with RR, VRU with VPU, and PE with RE. Since these analyses involved three distinct families of comparisons, the alpha for these tests remained at .05. Last, the data analysis method for addressing the third research question pertaining to the original location of the TVW proceeded as follows. After organizing the TVWs according to whether they belonged to set 1, set 2, or set 3, three general calculations were subsequently conducted: that of overall repetitions, delayed repetitions, and cognitive processes. Since this data represented a tally of frequencies, the appropriate statistical analysis is that of a chi-square test of independence. Once again, since there were three groups and three tests within the pairwise comparisons, an alpha of .017 was utilized.

FINDINGS AND DISCUSSION

Quantity of Repetitions

Insufficient Number of Overall Repetitions

TABLE 2
Profile of Overall TVW Repetitions

Book	n	Tallies of Repetition														
		1	2	3	4	5	6	7	8	9	10+	$\mu(SD)$	Median	Min	Max	Mode
1	63	8	8	18	9	6	4	4	2	1	3	4.1(2.6)	3	1	13	3
2	53	17	16	6	5	4	1	0	1	1	2	3.0(3.0)	2	1	16	1

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3	61	29	10	7	9	1	4	1	0	0	0	2.3(1.7)	2	1	7	1
4	91	37	26	10	5	3	1	1	2	1	5	2.8(2.8)	2	1	14	1
5	89	9	26	10	20	6	3	5	3	3	4	3.9(2.6)	3	1	12	2
6	28	7	6	5	1	4	1	3	1	0	0	3.3(2.2)	3	1	8	1
7	20	4	8	4	1	2	0	0	0	0	1	3.1(3.3)	2	1	16	2
8	77	13	24	19	7	2	3	4	1	0	4	3.4(2.9)	3	1	18	2
9	31	11	5	0	2	1	2	3	1	2	4	4.4(3.7)	2	1	13	1
10	26	1	2	0	1	1	2	3	4	2	10	7.0(5.6)	8	1	23	8
Total	539	136	131	79	60	30	21	24	15	10	33	3.7(3.4)	3	1	23	1

Regarding the first research question pertaining to repetition totals, Table 2 above displays the repetition totals in the ten textbooks analyzed, which can be understood as a general profile of repetition frequency in the books analyzed. The results indicate that the books are clearly not meeting the aforementioned general standard of five to eight minimum repetitions. The average across the ten books and 539 TVWs was 3.7 repetitions per word. The median number of repetitions per TVW for the 10 books was 3, indicating that roughly half of the words had 3 or fewer repetitions. Indeed, in every book, the median was actually less than the average, indicating the averages for each book were likely buoyed by outliers with many more repetitions than the average. The most common number of repetitions (mode) was also revelatory, with five books having a mode of one repetition, another three books having a mode of 2, one book with three, and one book with eight. Considered collectively, the descriptive statistics of average, median, and mode suggest that the most common number of repetitions is not likely to meet the previously mentioned standard of five to eight repetitions. However, a more nuanced analysis of exactly how many words were repeated once, twice, etc. perhaps most clearly elucidates the insufficient number of repetitions. With 136 TVWs with one repetition, another 131 TVWs with two repetitions, 79 TVWs with three repetitions, 60 TVWs with four total repetitions, 406 of the total 539 TVWs (75%) were not repeated at least five times.

These results appear to be significantly lower than Bakkal's (2016) study, which found averages of 5.6, 5.9, and 6.5 in the three books analyzed in that research. However, the data collection process in that book included measures that may have inflated the average number of repetitions per word. In short, when determining the final list of words to be included in the research, Bakkal consulted a list of the most frequently used words in English in order to make sure none of the three books included more frequently used words by chance. By trying to select such words from this list, it is plausible that this may have had an effect of choosing the more frequently used words overall, and by doing so, these words would be more likely to reappear. The current study intentionally excluded all TVWs from bands one and two from Nation's BNC-COCA list, as previously mentioned. Therefore, the current study is less likely to be susceptible to such inflation of the overall number of repetitions, which would likely occur from selecting very frequently used words. Also, as previously mentioned, the current study employed rather rigorous standards for including a repetition. Potential repetitions were excluded, while only certainly occurring repetitions were included. Bakkal did not stipulate whether such exact standards were included in her study

In addition to the average, median, and mode which can juxtaposed alongside the previous research of Bakkal, the minimum and maximum also provide some understanding of the full range of repetitions. If one considers the minimum repetitions in each book (i.e., one repetition) alongside the maximum repetitions for each book, a relatively broad range appears. The minimum of one repetition for every book indicates that in every book, at least one word was only repeated one time. In short, each book had at least one word that was only "noticed" once without any subsequent repetitions. As mentioned in the preceding review of background literature on the topic, while no hard consensus appears on the exact number of repetitions needed, it is clear that words must be repeated more than once. On the other hand, the maximum levels for eight of the ten books indicate many TVWs with repetition levels surpassing the minimum necessary level of five to eight. While the largest maximum repetition number of any book is 23 repetitions, another book repeated one TVW 18 times, and two books repeated a TVW 16 times. In essence, while some words are not repeated at all after the "noticing" repetition, some are repeated at levels that one could argue are not efficient, considering the limited amount of class time. Simply put, since eight repetitions may be more than enough, that class time may have been better used to either provide opportunities to repeat other TVWs that were rarely repeated or address other language items such as grammar or pronunciation.

However, despite the average repetitions in nine of the ten books falling within a tight range, as previously mentioned, it is notable that book 10 had many more average repetitions (7.0) than the next highest book (book nine with 4.4 average repetitions). In addition, book 10's median number of repetitions was eight, while all other books had medians of two or three. Indeed, out of the 26 TVWs in book 10, one TVW (4%) was repeated once, two TVWs (8%) were repeated twice, and one TVW (4%) was repeated four times. All remaining 22 TVWs (85%) were repeated at least five times. On the other

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hand, book 10 also included 10 TVWs (38%) that were repeated 10 or more times. While such a high number of repetitions would certainly help the learners to learn the TVWs, it may not be the most efficient use of class time. In summary, the general profile of repetitions throughout the ELT books analyzed in this study indicates ELT teachers should become well aware of how often vocabulary is repeated within the books used in class. While it is likely that the overall repetitions of words are insufficient and that the teachers should ensure communicative activities are included to increase repetitions via negotiation of meaning and also potentially consider including further supplemental review activities that can bolster repetition, that is not guaranteed. Indeed, if the teacher using book 10 provided supplemental TVW activities, it is unlikely to be an optimal use of class time. Thus, it is recommended that teachers clearly analyze the books that they use, potentially with the aid of an OCR program, to determine the rates of TVW repetition so that the teacher can modify their instruction accordingly.

Insufficient Number of Delayed Repetitions

In addition to considering overall repetitions, an analysis of delayed repetitions was also included. A profile of the ten books included in this study is included below in Table 3. In total, 432 of the total 539 TVWs (80%) did not include any delayed repetitions. In other words, the TVWs did not occur in any subsequent chapter from which the word was a TVW. Despite the previously outlined research which advised roughly five to eight overall repetitions, there are no standard guidelines for how many of the overall repetitions should be of the delayed repetition variety. Nevertheless, the previously cited research which underlines the value of delayed repetition, indicates that they should be included. Thus, if one errs on the side of caution and recommends one minimum delayed repetition, it appears the books are, by and large, not providing adequate practice. This means that learners are generally only encountering repetitions of the TVW within the confines of the chapter in which they are introduced, representing a learning approach associated with massed practice without any delayed repetitions. Teachers should be aware that such an approach may create an "illusion of effective learning" or mastery (Kornell, 2009, p. 1302) where the learners and teacher believe the learners' repeated successful encounters with the TVW in a short timeframe will result in long-term retention, which often is not the case. Indeed, such a massed practice approach may even result in reducing future student-induced repetitions, in that the students might feel so confident in their knowledge of the word that extra-curricular repetitions in the form of self-review may be deemed unnecessary by the students.

TABLE 3
Profile of Delayed TVW Repetitions

Book	n	Tallies of Delayed Repetitions															
		0	1	2	3	4	5	6	7	8	9	10+	$\mu(SD)$	Median	Min	Max	Mode
1	63	39	15	6	2	0	1	1	0	0	1	0	0.8 (1.6)	0	0	9	0
2	53	37	3	8	2	0	1	0	0	0	0	0	1.0 (2.5)	0	0	13	0
3	61	53	3	1	2	2	0	0	0	0	0	0	0.3 (0.9)	0	0	4	0
4	91	86	2	2	0	0	0	0	0	1	0	0	0.2 (0.9)	0	0	8	0
5	89	69	5	6	4	1	2	2	0	0	0	0	0.6 (1.4)	0	0	6	0
6	28	26	0	1	1	0	0	0	0	0	0	0	0.2 (0.7)	0	0	3	0
7	20	19	1	0	0	0	0	0	0	0	0	0	0.1 (0.2)	0	0	1	0
8	77	65	4	0	2	3	0	0	0	1	0	2	0.7 (2.2)	0	0	13	0
9	31	24	5	2	0	0	0	0	0	0	0	0	0.3 (0.6)	0	0	2	0
10	26	14	6	0	0	3	1	0	2	0	0	0	1.4 (2.2)	0	0	7	0
Total	539	432	44	26	13	9	5	3	2	2	1	2	0.5 (1.6)	0	0	13	0

To be clear, these findings were not altogether surprising. Although this is the first study to specifically address delayed repetitions in ELT textbooks, Tschichold (2012) previously analyzed a French as a foreign language intermediate four-skills textbook and, as mentioned, found very low rates of TVWs appearing after they were initially introduced. As mentioned, she found that around 30% of the 265 TVWs from chapters 1 and 2 were never repeated in later chapters, with another 20% appearing once and 15% being repeated twice. Although the third research question in the current study pertains to the location of TVW and includes isolated data from set 1, in order to provide a comparison with Tschichold, a brief analysis of this study's set 1's delayed repetition totals are subsequently reviewed. Focusing on set 1 alone is appropriate in that set

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1 from the current study pertained to TVWs from the first chapter of the book, which was similar to the TVWs that Tschichold studied. In short, regarding the TVWs in set 1, 68% were never repeated, 11% were repeated once, and another 11% were repeated twice. Clearly, this represents a much larger lack of delayed repetitions than what Tschichold found. While there is no evident explanation for this discrepancy, it may derive from the research methods. While the current study explicitly limited higher frequency words, Tschichold's study does not appear to have done the same. Perhaps, by including such higher frequency words, which were found frequently in the preliminary list of TVWs in the current study, Tschichold may have included higher frequency words which may appear naturally reoccur frequently in subsequent chapters, thereby having a bolstering effect on the overall delayed repetitions tally, compared to the current study.

Although not shocking, these results were disappointing. The concept that learners should revisit previously learned TVW in the form of delayed repetitions in ELT materials is not novel. Waring and Takaki (2003) emphasize the importance of revisiting previously learned TVW in the form of incidental vocabulary learning through graded readers, and Hulstijn (2001) calls for delayed repetitions in the context of explicit vocabulary instruction. However, clearly, the results from the current study found an insufficient quantity of delayed repetitions occurred in the studied textbooks. These findings have clear implications for the teachers of the modern ELT textbooks. Simply put, if the books are not providing the delayed repetitions that are advantageous for vocabulary acquisition, teachers should. This can be done a number of different ways. As Hulstijn (2001) suggests, one approach is to have the students reread previous texts which include various TVWs from a previously studied chapter. As an add-on activity, the teacher could also task the students with writing a summary of the text which must include a list of teacher-prescribed TVWs. However, as Hulstijn concedes, rereading previously studied material may not be especially interesting for students. Hulstijn (2001) recommends each chapter includes one listening activity and one reading activity that only involves previously learned TVWs. While the current study's findings indicate these activities are generally absent from textbooks, they can be included when supplemented by the teacher. The teacher could consult a list of previously studied TVWs and construct a novel passage about the current chapter's topic while making use of multiple previous TVWs. Since such preparation is clearly time-consuming, the researchers recommend the use of advanced technology programs such as ChatGPT to construct a preliminary draft which the teacher could refine for clarity and appropriateness.

Alternatively, if teachers want to conduct other whole-class activities, one traditional approach would be to use fill-in-the-blank activities. If the teacher wanted to increase the number of TVWs included in such an activity, a word bank for each blank could be supplied to the students with various TVWs. If the students find this activity unappealing, a gamified version using Kahoot or another online formative assessment tool may increase student enthusiasm. An alternative is to simply ask the students to complete flashcards. This can be done individually or in partners as a form of collaboration or competition. Flashcards have the advantage in that students are generally familiar with the concept and that this kind of activity can be a great use of class time for "fast finishers" who complete one activity before other groups. Indeed, the flash card sets could be designed by the teacher to specifically repeat words that are less often repeated in the textbook. Needless to say, flashcard review could also be conducted by the students outside of class as homework. Lastly, the researchers, once again, recommend the inclusion of various communicative activities. In doing so, teachers can consider the full collection of previously learned TVWs and create a ranking, interviewee-interviewer, or discussion topic. This type of activity can assist in creating delayed repetitions of previously learned TVWs while providing an additional bonus in bolstering the overall repetition total, which was generally insufficient, as previously mentioned. In conclusion, teachers have a wealth of potential activities for increasing delayed repetitions which can be selectively chosen for appropriate use in various class contexts.

Needless to say, these findings have the strongest implications for future textbook creators. As noted by Schmitt (2019), the authors and syllabus designers, who often take a year or more to develop a textbook, should consider how to systematically build delayed repetitions into their course. As Hulstijn (2001) suggested previously, such delayed repetitions could come in the form of a novel text or listening activity that includes previously learned TVWs. Considering that most modern ELT textbooks are organized by distinctly different topics, the inclusion of various previously studied words from different topics may be problematic in creating natural language contents. However, in the case of intermediate (as well as beginner-level) learners, the suitable TVWs are not generally overly topic-dependent. With careful consideration regarding the precise TVWs to be included and careful crafting of the contents which can include previously studied TVWs, delayed repetitions can indeed occur. In short, the textbook creators need to pick the right TVWs, and they need to consciously create contents for one topic that allow for the relatively natural inclusion of previously studied TVWs. In the context of the current study, it appears that both elements were not included. Indeed, approximately 18% of the preliminary 659 TVWs from the books were excluded because they were not appropriate. Furthermore, the finding that very few delayed repetitions occurred indicates careful crafting of texts to include previous TVWs was likely not a priority when developing the textbooks included in this study.

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Cognitive Processes

The final research question pertained to the cognitive processes related to repetitions of the TVWs. The overall profile of the cognitive processes associated with the repetitions is portrayed below in Table 4. As previously mentioned, the repetition tallies began when the word was introduced, or presented in a manner to be noticed. This constituted the first and "noticing" repetition. Although technically possible, there were no subsequent "noticing" repetitions after that initial repetition. Thus, in the case of every word, there was exactly one "noticing" repetition. Therefore, in the table above, the number of TVWs (n) can also be accurately understood as the number of "noticing" cognitive processes. In order to avoid redundancy, a separate column for noticing was not included. Furthermore, considering that there was exactly one noticing repetition per TVW and that a noticing cognitive process was inherently a prerequisite for inclusion in the study, the totals in the right-hand column of Table 4, as well as the percentages within the table, do not include the noticing cognitive processes. As previously mentioned, a series of statistical analyses were conducted, and the results are portrayed below in Table 5. As previously mentioned, the one "noticing" cognitive process was considered inherent and was not included. As predicted in Table 4 and confirmed in Table 5, there are a number of statistically significant findings.

TABLE 4

Profile of Cognitive Processes by Book

Book	N	PR	RR	VPU	VRU	PE	RE	Total
1	63	8 (4.1%)	76 (38.6%)	4 (2%)	109 (55.3%)	0 (0%)	0 (0%)	197
2	53	0 (0%)	19 (20.7%)	5.5 (6%)	67.5 (73.4%)	0 (0%)	0 (0%)	92
3	61	12 (13.8%)	30 (34.5%)	7 (8%)	38 (43.7%)	0 (0%)	0 (0%)	87
4	91	17 (10.8%)	26 (16.6%)	1 (0.6%)	112 (71.3%)	1 (0.6%)	0 (0%)	157
5	89	32 (11%)	78 (26.8%)	29 (10%)	151 (51.9%)	1 (0.3%)	0 (0%)	291
6	28	15 (22.4%)	14 (20.9%)	12 (17.9%)	26 (38.8%)	0 (0%)	0 (0%)	67
7	20	5 (11.4%)	9 (20.5%)	2.5 (5.7%)	27.5 (62.5%)	0 (0%)	0 (0%)	44
8	77	23 (10.9%)	23 (10.8%)	47 (22.2%)	116 (54.7%)	2 (0.9%)	1 (0.5%)	212
9	31	10 (9.7%)	43 (41.7%)	14 (13.6%)	36 (35%)	0 (0%)	0 (0%)	103
10	26	21 (9.3%)	7 (3.1%)	11 (4.8%)	188 (82.8%)	0 (0%)	0 (0%)	227
Total	539	143 (9.7%)	325 (22.0%)	133 (9.0%)	871 (59.0%)	4 (0.3%)	1 (0.1%)	1477

Note. N = Noticing.

Lack of Elaborative Cognitive Processes

First of all, there are very few repetitions related to elaborative cognitive processes, in either a productive or receptive manner. As Table 5 shows, effect sizes were calculated for statistically significant results, involving a standardized effect size ($Z/\sqrt{(n1+n2)}$). Indeed, when the number of repetitions associated with the cognitive process of elaboration was compared with the number of repetitions associated with either varied use or retrieval, a statistically significant result was yielded with a large effect size. The magnitude of the effect sizes (r = .62 and .57) points to a strong disparity between how much elaborative cognitive processing occurs through the books' instruction versus and the cognitive processes of retrieval or varied use. Although the number of repetitions associated with elaboration was not predicted to be especially significant, the number that was actually found was a surprisingly small rate. Clearly, the books being of an intermediate level may partially explain this. Perhaps, the authors of the books felt the intermediate level of the students completing the book would create difficulties concerning the complexity of the relatively complicated elaborative activity. Perhaps, books for high-intermediate or advanced learners would employ more elaborative activities with the assumption that the learners are more capable of completing the activity. Nevertheless, it is unclear if the cognitive processes related to elaborative activities are categorically more difficult to complete than that of the VPU or VRU category. In VPU or VRU, the learners typically perform some communicative function using the TVW, such as in a role-play or interview. In an elaborative activity, the TVW is involved in a mnemonic device, such as in the keyword method, or the nuances of the word are debated or discussed. Indeed, both activities seem to be of a communicative nature, and it remains unclear if one category is demonstrably more difficult to complete than the other. Furthermore, previous studies (Sagarra & Alba, 2006; Taheri & Davoudi, 2016) have

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found that the keyword method is particularly effective for lower learners. While the keyword method is only one manifestation of the elaborative approach, it is one of the most prominent approaches to vocabulary learning with a positive track record. In fact, in reflection of the difference between the elaborative and the VPU or VRU categories, it appears a more distinguishing factor is the focus of the activity. In other words, in an activity associated with VRU or VPU, the target word is used in the context of a communicative setting, while in an elaborative activity, the word receives much more attention. Considering these levels of attention, while the value of VPU or VRU activities is undoubtedly clear in using the vocabulary, the value of elaborative activities and the very focused attention on the vocabulary word for long-term attention should not be discounted, as has been demonstrated in previous research (Sagarra & Alba, 2006). To be clear, it is not imperative for all vocabulary words to be practiced via a repetition associated with elaborative cognitive processes. Nevertheless, the disregard of employing elaborative activities, including the keyword method, seems to be a missed opportunity. Furthermore, while outside of the scope of the current study, elaborative activities appear likely to further increase repetitions by entailing opportunities for negotiation of meaning involving the TVW.

TABLE 5

Mann Whitney Test Results Regarding Cognitive Processes

	μ(*SD*)	*U*	*p*	Effect Size		*μ*(*SD*)	*U*	*p*	*Effect Size*
Retrieval	0.9 (1.2)	121110	< 0.01*	0.15	PR	0.3 (0.5)	121604	< 0.01**	0.18
Varied Use	1.9 (2.8)			small	RR	0.6 (1.0)			small
Varied Use	1.9 (2.8)	228693.5	< 0.01*	0.62	VPU	0.3 (0.5)	85036	< 0.01**	0.40
Elaboration	0.0 (0.9)			large	VRU	1.6 (2.6)			medium
Retrieval	0.9 (1.2)	71681.5	<0.01*	0.57	PE	0.0 (0.0)	144721	0.31	-
Elaboration	0.0 (0.9)			large	RE	0.0 (0.1)			

Note. * indicates statistical significance at α < .017, ** indicates statistical significance at α < .05.

Varied Use and Retrieval Cognitive Processes

Another interesting finding was the clear imbalance between varied use and retrieval repetitions. For example, VRU and VPU repetitions combined for 1004 (68%) of the total cognitive processes recorded. In contrast, repetitions involving retrieval totaled 468 repetitions. When additional Mann Whitney U tests were completed to compare how frequently these repetitions appeared per TVW, the results were notable. As indicated in Table 5 above, these results were also statistically significant, but with a small effect size of .15. Furthermore, of the 325 RR-associated repetitions, 122 came in the form of a repeated listening or repeated reading. As previously mentioned, Webb and Nation (2017) make clear that if a repetition is repeated and not novel, it should be considered as retrieval. Thus, approximately 38% of RR-associated repetitions were predicated on having first encountered a VRU in the form of a reading text or listening activity. To be clear, it is not altogether noteworthy that students often have to reread a text or listen to a listening activity multiple times. However, it is notable that such activities where the students reread or listen again result in fewer genuine retrieval-associated repetitions.

Productive and Receptive Cognitive Processes

Moreover, the current research was especially interested in the division of the productive vs. receptive cognitive processes because numerous previous studies have underlined the effectiveness of activities that promote production of the TVW. As outlined in Table 5 above, the statistically significant results indicate RR was more common than PR ($p < .01$, effect size = .18) and VRU was more common than VPU ($p < .01$, effect size = .4). Considering the fact that retrieval and varied use consisted of the vast majority of cognitive processes (since noticing occurred once and elaborative cognitive processes were rare), the relatively small disparity between RR and RP and significant disparity between VRU and VPU indicates students are likely to produce the TVW much less than they encounter it receptively.

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This is troubling since, as previously mentioned, studies have shown that productive activities have been associated with greater gains in vocabulary acquisition. Thus, it appears teachers should accommodate their teaching approaches to address this weakness in textbooks and textbook creators are urged to address this deficiency when creating newer editions or brand-new textbooks. In terms of teachers, they are urged to create opportunities for productive practice. This could come in a variety of forms. For example, learners might write short dialogues, summaries, or journal entries that must include specific TVWs, or engage in pair discussions where those words are needed to complete a communicative goal. Alternatively, pair or group story-building activities, where each student must contribute a sentence using one of the target words, can promote spontaneous and creative production. If a teacher wanted to provide a more interesting activity, he/she could use a board game or card-based activity where players must make sentences using target words creating a fun manner of productive practice. On the other hand, the textbook creators are also urged to consider various options for correcting this imbalance. For example, books can provide information-gap activities where students turn to different resources in the back of the book for instruction and preparation. Including TVWs in these activities would help to bolster productive repetitions, and seems to be ideally suited for books. Alternatively, the common 'find someone who' mingling activity may be another opportunity for increasing productive practice of TVWs. Last, a game of discussion questions or sentence-construction could be included within the actual chapter or in the back of the book as an additional "speaking activity." To be clear, much of these suggestions for future textbooks are not unique to the capabilities, since they can also be created by teachers. However, if textbook creators address this imbalance in future textbooks, teachers would not need to provide such supplemental activities.

Impact of Location of TVW on Repetitions, Delayed Repetitions, and Cognitive Processes

The third and final research pertained to whether the location of the TVW had an impact on the quantity of repetitions, quantity of delayed repetitions, or cognitive processes. As previously mentioned, the TVWs were from the first chapter of the book in the case of set 1, approximately 1/3 of the way through the book in the case of set 2, or approximately 2/3 of the way through the book in the case of set 3. Furthermore, as stated, since this data represented frequencies, a chi-square test of independence was deemed appropriate for comparison. The results concerning the overall repetitions according to the three sets are displayed below in Table 6, while the results concerning the quantity of delayed repetitions are presented below in Table 7.

TABLE 6

Chi-square Test of Independence of Overall Repetition Quantity by Set

		Tallies of Repetition											χ^2 Test of Independence			
Set	N	1	2	3	4	5	6	7	8	9	10+	$\mu(SD)$		χ^2	p	effect size φ
1	194	54	29	26	25	14	8	11	7	5	17	4.1 (3.6)	1 vs. 2	20.0	0.40	-
2	178	50	45	25	18	7	7	7	5	5	9	3.5 (3.3)	1 vs. 3	32.7	< 0.01*	0.30 (medium)
3	167	32	57	28	17	9	6	6	3	0	9	3.3 (2.7)	2 vs. 3	18.5	0.29	-
Total	539	136	131	79	60	30	21	24	15	10	33					

Note. * indicates statistical significance at α < .017.

TABLE 7

Chi-square Test of Independence of Delayed Repetition Quantity by Set

		Tallies of Delayed Repetitions											χ^2 Test of Independence			
Set	N	0	1	2	3	4	5	6	7	8	9	10+	$\mu(SD)$		χ^2	p	effect size φ
1	194	132	21	21	7	4	2	2	1	2	1	1	1.0 (2.1)	1 vs. 2	30.0	< 0.01*	0.28 (small)
2	178	149	17	1	4	3	3	0	0	0	0	1	0.4 (1.2)	1 vs. 3	30.8	0.03*	0.29 (small)
3	167	151	6	4	2	2	0	1	1	0	0	0	0.3 (0.9)	2 vs. 3	13.6	0.09	-
Total	539	432	44	26	13	9	5	3	2	2	1	2					

Note. * indicates statistical significance at α < .017.

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The results in Table 6 indicate a statistical difference between the number of repetitions that occurred in set 1 and set 3 with a medium effect size of .3. Simply put, this suggests that words that appear later in the book will be repeated on average of about .8 less of a repetition (an average of 4.1 for set 1 vs. an average of 3.3 for set 3). In order to determine which number of repetitions had a driving factor in establishing the reported statistical difference, standardize residuals were calculated. The analysis indicated that the major difference between set 1 and set 3 involved the number of one-repetition TVWs and two-repetition TVWs. Simply put, many more TVWs in set 1 were not repeated at all and set 2 had many more TVWs that were repeated once. The reason for this is not apparent. Perhaps, since the TVWs are in chapter 1, the authors may assume the teachers will review TVWs or incidentally provide a repetition at some point in the course. However, considering that these two data points are one repetition away from each other, such differences are likely to be easily remedied. Future textbook authors should be careful to make sure words are not simply introduced and then forgotten. In terms of the differences of delayed repetitions by set, another plausible explanation regarding set 1 and set 3's overall differences in repetition occurs in the statistically significant finding of the number of delayed repetitions between set 1 and set 3 in Table 7. Set 1 had an average of 1.0 delayed repetitions per TVW, while set 3 had an average of 0.3 delayed repetitions per word. To determine the likely causes underpinning these differences, a residual analysis was conducted which indicated that the number of two-delayed repetitions was a driving factor in establishing set 1's difference against both set 2 and set 3. This overall finding suggests that the location of the TVW does impact how many delayed repetitions may occur. However, it is noteworthy that no difference occurred between set 2 and set 3.

Since the number of delayed repetitions was included in the total number of overall repetitions, it is likely that these delayed repetitions played a significant role in inflating set 1's overall repetition tally to a level inconsistent with set 3's. Taken as a whole, these aforementioned findings suggest learners are likely to encounter many more repetitions of TVWs that occur at the very beginning of the book than subsequent TVWs that occur later. Once again, teachers should be aware of this and augment their class accordingly, making sure to provide additional repetitions (and delayed repetitions) of TVWs that occur in later chapters. Furthermore, interestingly, despite not yielding a statistically significant result when considering overall repetitions in Table 6, set 1 was found to have significantly more delayed repetitions than set 2. Indeed, there was no statistically significant result when comparing set 2 and set 3 in terms of overall repetitions or delayed repetitions.

TABLE 8

Chi-square Test of Independence of Cognitive Processes by Set

Set	N	PR	RR	VPU	VRU	PE	RE	Total	χ^2 Test of Independence			
										χ^2	*p*	effect size φ
1	196	58	139	57	385	2	0	837	1 vs. 2	3.5	0.62	-
2	178	31	87	45.5	289	2	1	633	1 vs. 3	14.7	< 0.01*	0.11 (small)
3	165	54	99	30.5	198	0	0	546	2 vs. 3	21.8	< 0.01*	0.16 (small)
Total	539	143	325	133	871	4	1					

Note. * indicates statistical significance at α < .017.

As previously mentioned, an analysis of the cognitive processes across the sets was also conducted. Table 8 above provides a profile of how the three different sets were associated with the various cognitive processes and the results from chi-square tests of independence between the sets. The statistically significant results of this analysis indicated significant differences between set 1 and set 3, as well as set 2 and set 3, with no significant difference between set 1 and set 2. Once again, an examination of standardized residuals was concluded. In terms of comparing set 1 vs set 3, VRU was found to have the most significant discrepancy between the two sets. VPU and RR also indicated significant discrepancies, though much less than what was recorded by VRU. In terms of comparing set 2 and 3, the residual analysis indicated the quantities of PR and VRU as the likely difference-makers.

Simply put, the cognitive processes associated with the TVWs appearing later in the book appear to be categorically different from that of the TVWs appearing at the very beginning of the book, that is to say, the TVWs from set 1, or relatively early in the book in the case of set 2. The reason for this finding is not readily apparent. Clearly, with VRU being a driving factor in establishing differences between set 1 and set 3, the difference in the number of VRU-associated repetitions appears to be a likely starting point. However, the reason for this is also far from evident. One potential reason is that textbook creators may be designing textbooks in awareness that not all classes will finish all the chapters. Considering the typical approach is to start at chapter 1 and work forward, perhaps the textbook creators are intentionally front-loading the repetitions in the earlier part of the book in order to make sure that the TVWs that most students will encounter are learned.

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Furthermore, an alternative possibility is that later chapters may shift focus to grammar, skills integration, or other language items, which may have an impact of reducing the overall number of repetitions. In summary, perhaps the most interesting finding was the trend between set 1 and set 3. Indeed, in each test of overall repetitions, delayed repetitions, and cognitive processes, set 1 was found to be statistically different from set 3. In general, set 1 was found to have more overall repetitions, more delayed repetitions, and more VRUs than set 3.

Findings in Context

In concluding the discussion section of the current research, a closer analysis of the main findings in the context of the pedagogical approaches utilized by the textbooks is useful to provide tangible suggestions for future textbook creators as well as teachers of current textbooks. First of all, the current study found the number of repetitions seems to be, on average, either less or at the low end of the recommended number (i.e., five to eight). Teachers should be aware of the relatively lower repetition tallies, especially in later chapters. Considering the opportunity of numerous repetitions in negotiating meaning within communicative activities (which were often excluded in the current study), it is recommended that teachers ensure such activities are not skipped. Furthermore, considering the relatively lower number of repetitions for TVWs introduced later in the book, such as those in set 3, teachers are recommended to include supplemental activities that either directly or indirectly practice the vocabulary. In the case of future textbook creators, the relative lack of repetitions clearly implies future books should include more repetitions. In conducting this research, a number of approaches were observed that might assist in providing additional repetitions. First of all, interconnected activities provide opportunities for numerous repetitions. For example, in excerpt (1) below from *Face2Face*, the learners had to first conduct a retrieval repetition before then asking, listening, and generating utterances with the TVW. Garth (2023) previously found grammar practice activities to include numerous interrelated practice activities which can serve to scaffold the learners' use of the grammar. Garth found this to increase the number of opportunities to practice the grammar in a progressively difficult manner, thereby building confidence and enabling lesser-capable students to complete activities with more advanced students. Clearly, a similar approach is displayed below which can increase repetitions while also enabling students to use the grammar in a confidence-building and meaningful manner.

(1) Excerpt illustrating interconnected activities with numerous repetitions (Redston & Cunningham, 2014, p. 11)

(A) Complete questions 1-8 with these verbs. *do* *have* *go to* *meet up* *go* *tidy up* *chat* *visit*
Last weekend did you…?
1 _*do*_ any exercise?
2 ____ clubbing?
3 ____ the house/flat?
...

(B) Work in pairs. Take turns to ask and answer the questions.

As previously recommended by Hulstijn (2001), a second approach to increasing total repetitions would be to take advantage of input activities such as listening activities or reading texts that provide ample opportunities for TVWs to be recycled. While such an approach should not be overused as to make the text or listening script awkward or feel forced, a concerted effort to occasionally include either TVWs from the chapter at hand in that chapter's reading or listening activities or in subsequent chapters' activities would also serve to increase total repetition tallies. To be clear, some of these texts may be examples of authentic language, especially in the case of reading activities. However, if done judiciously, it is likely textbook creators could largely preserve the authentic language of the text while simply substituting synonyms or adding minimal additional content. In the year 2025, with artificial intelligence playing a large role inside the classroom, certain technologies such as ChatGPT, could help to identify appropriate opportunities for additional repetitions in such existing texts and audio files before settling on the final draft for publication.

While input activities provide opportunities, a third approach is to provide repetitions of the vocabulary within segments of the chapter regarding other elements of language learning. As observed, the vocabulary "noticing" section tends to occur as the first activity of a chapter. Subsequently, a number of other language items are learned, such as pronunciation, grammar, reading, or listening. Since reading and listening activities were previously discussed regarding input activity opportunities, greater focus will be placed on grammar (though pronunciation activities also were found to include repetitions but to a much smaller degree). As shown in excerpt (2) below, the grammar section of the chapter concerned adverbs before

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adjectives and adverbs. The chart provides numerous examples of the grammar which frequently included the TVWs that were previously introduced at the beginning of the chapter such as “talented,” “generous,” “easygoing,” and “laid-back.” While the excerpt only provides a sample of the grammar presentation in the book, of the 11 total sentences, seven of the sentences included a TVW. To be clear, while this type of phenomenon where TVWs were included in the presentation of the chapter’s grammar, the excerpt below provides an example of exceptionally high instances of TVW repetitions in a grammar presentation section. The other books did not include such a high rate of repetition within the grammar presentation sections.

(2) Excerpt illustrating repetitions within grammar presentation activities (McCarthy et al., 2014, p. 5)

Use *incredibly*, *extremely*, *very*, *really*, and *so* to make some adjectives and adverbs stronger.	She’s incredibly talented. She’s extremely generous. He’s a really cool guy. We get along very well.
Use *pretty* and *fairly* to mean more than a little.	He’s pretty easygoing. He’s fairly laid-back.

In addition to providing opportunities for repetitions within the grammar presentation activity, grammar practice activities also provide an opportunity for repetitions. For example, excerpt (3) below displays the practice activity for the grammar introduced in excerpt (2). In excerpt (3), the learners had to first generate a sentence using the TVW and target grammar alongside a subsequent sentence which would help to contextualize both the grammar and TVW. Secondly, the learners had to exchange their sentences with partners, which enables the learners to provide pre-written personalized content to a partner. Clearly, this type of activity would provide opportunities for numerous repetitions, along with a significant likelihood of additional negotiations of meaning concerning the TVW (as well as grammar). While the excerpt below displays how vocabulary repetitions can be included in a communicative activity nominally dedicated to grammar practice, the current study also found numerous examples of simpler fill-in-the-blank exercises where the learners had to utilize the grammar properly with a repetition of the TVW word embedded within the sentence.

(3) Excerpt illustrating repetitions within grammar practice activities (McCarthy et al., 2014, p. 5)

(A) Do you know people with these qualities? Write a sentence for each expression. Add an example.
1 totally laid-back 2 pretty generous 3 very honest 4 absolutely wonderful 5 not competitive at all
…

(B) Pair work. Compare sentences with a partner.
A: My boyfriend is totally laid-back. He always goes along with my plans and everything.
B: Really? He sounds incredibly easygoing.

To be clear, the approach displayed above in excerpt (2) and excerpt (3) shows that TVWs were included in the presentation and practice activities of the grammar for the chapter. However, despite this being a frequently observed tactic in the ELT textbooks of the current study, it presents an interesting issue and opportunity for future research. On the one hand, such an approach appears to be an optimal use of class time. Simply put, in excerpt (2), the learners are being taught the rules of the grammar while incidentally encountering repetitions of the TVWs of that chapter. In excerpt (3), the learners are practicing the grammar while also incidentally encountering repetitions of the TVWs. However, such an approach may run counter to Barcroft’s (2002) type of processing-resource allocation (TOPRA) model for language learning and vocabulary acquisition in particular. While decidedly less prominent than either the ILH or TFA, many of the aspects of Barcroft’s model are not distinct from the previously outlined tenets that impact vocabulary acquisition, such as the necessity of multiple repetitions and the value of PR. However, one central element to the TOPRA model is the concept of limited attentional capacity. Simply put, since cognitive processing of a foreign language’s input is demanding, placing attention to any one aspect of the input will result in reduced attentional resources going to other elements of the language (Newton, 2020). Clearly, such an approach has close parallels to skill acquisition theory and the system of declarative knowledge, proceduralization, and automaticity.

In an ideal circumstance, the explicit vocabulary instruction and activities from the preceding page, where the TVWs

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were introduced and practiced, would provide a foundation with the TVWs so that the learners would be well on their way to proceduralizing these TVWs. In doing so, the learners would not have to exert significant attentional resources when looking at the example sentences of the grammar or completing the various grammar practice activities which include the TVWs. Furthermore, those repetitions of TVWs would help to bolster the overall repetition rates of the TVWs. However, considering the fact that these TVWs were presented on only the preceding page, and despite the various activities and previous repetitions of the TVWs, it is plausible that for at least some of the students, these TVWs may not be learned well enough at this point so that they do not interfere with understanding the grammar. Considering this line of inquiry, the researchers from the current study recommend future research that investigates the usefulness/interference of this approach. Simply put, it is unclear if this approach is beneficial and does not interfere with grammar acquisition, or if the inclusion of recently introduced TVWs is an actual disservice and interferes with the learners' attentional resources towards the grammar. Or, perhaps, since it is a grammar section, the learners' attention is focused on the grammar point, and the mere presence of the TVW is not even registered. If future research indicates that the inclusion of TVWs does not interfere with grammar acquisition, it would appear that grammar presentations, controlled grammar practice activities (i.e., fill-in-the-black exercises), as well as communicative grammar practice activities provide opportunities for repeating not only the TVWs of the chapter being studied but also TVWs from previously studied chapters. However, if it is found that the inclusion of recently learned TVWs hinders either understanding of the target grammar or development of TVW acquisition, a significant modification would be appropriate regarding the organization of textbooks.

In addition to too few repetitions overall, the current research also found relatively few productive repetitions. As previously mentioned, this finding was not altogether shocking because of the standards for being included in the study. Simply put, many potential repetitions were not included because they were not definite repetitions. As recommended before, the authors stress the importance of teachers including productive activities in class. Not only will such activities help to bolster the overall number of repetitions, but they will also help to provide valuable productive repetitions. For textbook creators, this finding clearly suggests creators may be able to produce a more effective book in terms of vocabulary acquisition if additional productive activities concerning the vocabulary are included. Since there are page and space limits, the authors of the current study, once again, would recommend utilizing interconnected activities, which can provide productive repetitions that are simply added on to a previous activity, thereby providing numerous repetitions while taking up relatively little page space.

Last, the significant lack of elaborative repetitions provides opportunities for teachers and textbook creators to create supplemental activities. In truth, the keyword method, which is perhaps the most well-known and widespread example of an elaborative repetition, requires very little setup for teachers. The typical approach requires the learners to create a mental image involving the real definition of the TVW and what it sounds like in the learner's first language, as previously demonstrated with a cart overflowing with letters, for the TVW "carta" which means letter in Spanish. This type of activity does not inherently involve a textbook. Since English learners may come from a variety of different first languages, it might not be feasible to try to guide learners to certain keyword mental images. Instead, the authors recommend textbook creators provide other activities such as semantic mapping, where learners link synonyms, antonyms, or categories of the TVW.

CONCLUSION

The findings of this study on vocabulary repetition in intermediate ELT textbooks for adults reveal a number of key trends and shortcomings that have significant implications for both educators and textbook publishers. The analysis of 10 intermediate ELT textbooks found there were between three and four repetitions of the TVW on average, which falls below the general minimum standard of five to eight repetitions needed for vocabulary acquisition. However, the average repetition per TVW was clearly inflated by numerous TVWs receiving many more than the average repetition per that book. Indeed, the overall median number of repetitions for the 10 books analyzed was three, with five books yielding a median of two repetitions per book. Simply put, this means that in five books, half of the TVWs were repeated only one time after being introduced. This indicates numerous TVWs were insufficiently practiced and are less likely to be fully acquired by learners who are using those books. In addition to the overall number of repetitions, the current study also examined the number of delayed repetitions and found 80% of TVWs were never repeated after the chapter in which they were introduced as a TVW. This finding also suggests the books are insufficiently reviewing previously studied TVWs to the detriment of the learners' long-term vocabulary acquisition.

Secondly, the study examined the cognitive processes associated with repetitions of the TVWs. The major findings from this strand of inquiry included that the varied use-associated repetitions were much more common than both that of retrieval

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or elaboration, with the retrieval-associated repetitions being much more common than elaboration, in turn. Further analysis examined productive and receptive cognitive processes and found that VRU was indeed much more common than VPU and that RR was also more common that PR, indicating receptive-associated cognitive processes are dominant within the books analyzed. Considering the aforementioned studies citing the effectiveness of productive-associated cognitive processes in vocabulary learning, it appears the books may be insufficiently practicing the vocabulary in a productive manner. Another finding regarding the cognitive processes pertained to that of elaboration. The five total repetitions associated with the cognitive processes of PE and RE yielded only 0.3% of the total number of the cognitive processes. Although the cognitive process of elaboration was not expected to form a large portion of the overall number of cognitive processes, this finding was surprisingly low.

The last strand of study in the current research pertained to how the location of the TVWs may impact overall repetitions, delayed repetitions, and the cognitive processes. In short, the most interesting finding was that set 1 was found to be statistically different from set 3 in all three regards. This suggests that the TVWs that are introduced earlier in the book are practiced in a very different manner from the TVWs introduced later in the book. To be clear, this may be resulting from an intentional design to front-load particularly important TVWs that the authors prioritize and deem especially important for the learners to acquire. However, at least in the case of VRUs, where additional repetitions can be relatively easily bolstered via finding ways to incorporate additional repetitions into listening files or reading texts, it appears steps can be taken to help ensure TVWs from the latter part of the book can also be sufficiently repeated.

Based on this analysis, the following recommendations are provided for improving vocabulary instruction and textbook design. For teachers, it is crucial to supplement textbooks with additional activities to ensure students are exposed to each TVW at least five to eight times. In terms of addressing the lack of delayed repetitions, teachers are urged to review previously studied TVWs, lest they become forgotten. As previously outlined, there are numerous options for doing so including rereading previous texts, reading novel texts which include TVW which were created by the teacher with potential help from technology, flashcards, and review games. They should also actively incorporate more productive and communicative tasks and simple, low-setup elaborative activities to promote deeper engagement and enhance long-term retention. For textbook creators, it is recommended that they design materials that consistently provide an adequate number of repetitions for all TVWs, regardless of their position in the book, and integrate more productive and elaborative activities to balance the focus on receptive repetitions. It is also imperative for textbook designers to include delayed repetitions of TVWs. While acknowledging that chapters are designed to repeat the TVW of the chapter, a systematic and conscientious approach could clearly increase the number of delayed repetitions created through the book, thereby lessening the number of supplemental activities which include delayed repetitions that the teacher has to create.

Furthermore, it should be noted that the current study investigated intermediate ELT textbooks and specifically analyzed the words that would be appropriate for intermediate learners. In doing so, the most commonly occurring words (i.e., words from band 1 and band 2 of the BNC-COCA headword list) were excluded from the study. Furthermore, words that occurred in band 6 and onward were similarly excluded. Considering these exclusions, it should be carefully noted that the findings from the current study cannot be applied to either lower-level textbooks or more advanced-level textbooks. Lower-level textbooks are likely to include more TVWs from bands 1 and bands 2, which are more foundational to the language. Thus, these words are probably much more likely to occur incidentally throughout the textbook. On the other hand, advanced-level textbooks are likely to have many more topic-dependent words which are probably less likely to occur throughout the textbook. Thus, future research which specifically addresses the repetitions of TVWs in lower-level textbooks as well as advanced-level textbooks would help to understand how those unique subsets of learners are encountering their TVWs.

Finally, the current study, while informative, points to several areas for future research. A larger-scale study involving more textbooks from different publishers and proficiency levels would provide a more representative understanding of the general state of ELT materials. Furthermore, future research should attempt to measure the 'potential repetitions' that occur in actual classroom settings, such as during student-led discussions, to provide a more accurate count of total repetitions. Lastly, further research is also warranted regarding the inclusion of TVWs during both the grammar presentation section as well as the initial grammar practice activities and how such practices impact both vocabulary acquisition as well as understanding of the grammar point.

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