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# 'Solve the crossword': an analysis of task design in EFL materials from a vocabulary perspective

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**ABSTRACT**

Learning vocabulary is a central and time-consuming endeavour for a language learner and it has thus been suggested that the foreign language classroom has to supply explicit support for students' vocabulary development. A major source of explicit word focus is vocabulary exercises in teaching materials and students' learning can be facilitated if they are designed in a way that is conducive to learning. Few studies have so far sought to establish what learning opportunities tasks in materials provide. The present study reports an analysis of the vocabulary exercises in three series of Swedish intermediate EFL materials, focusing on target vocabulary and learning conditions. The target vocabulary was analysed in terms of frequency distribution in general English and the learning conditions provided were studied using a modified version of the Involvement Load Hypothesis. The results indicate that learning is facilitated through extensive retrieval opportunities in the material. However, it was also found that the exercises seldom require students to use the target vocabulary and that it comprises primarily high-frequency words, that is, words that the learners are likely to already know. It is therefore concluded that a more systematic approach to vocabulary has to be adopted by materials developers to ensure that word-focused tasks contribute significantly to students' learning.

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## Introduction

A central challenge facing language learners is developing a vocabulary sufficient for communication (Nation 2022). This endeavour requires substantial time and effort, especially as the vocabulary demands for successful language use and comprehension are high. The finding that knowledge of about 98% of the words in a text is necessary to understand it well (e.g. Schmitt, Jiang, and Grabe 2011) shows the important role that vocabulary has for reading comprehension. Moreover, Nation (2006) estimates that a learner of English needs to know 8–9000 word families to comprehend written English. Developing a vocabulary of this size is a complicated task and researchers have thus argued that students need support to succeed in their vocabulary development (e.g. Schmitt 2008). In the EFL classroom, where the target language exposure is limited, it has been found that explicit attention to vocabulary is necessary to facilitate learning (Laufer 2005; Newton 2020), for example, through form-focused instruction or different vocabulary exercises (the terms *exercise* and *task* are used interchangeably in the paper). As a language learning course comprises development of many skills and language aspects, the time spent specifically on vocabulary will be limited

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(cf. Nation 2007). Therefore, it is not only important that attention is given to vocabulary in the EFL classroom; the activities also have to make good use of the time by being constructed in a way that supports learning.

A commonly used tool in the classroom is published teaching materials (Gray 2016). They are typically a source of explicit vocabulary focus, in the form of vocabulary exercises (Laufer 2020). Schmitt (2019) highlights the important role that teaching materials can play in supporting vocabulary development in the classroom and points out that they are particularly suitable for a research-based approach to vocabulary, entailing a systematicity and structure that may be too demanding and time-consuming for the individual teacher to ensure. As research has indicated that EFL teachers commonly do not prioritise focusing explicitly on vocabulary (Bergström, Norberg, and Nordlund 2022; Hermagustiana et al. 2017), it appears even more important that teaching materials are well-structured in terms of vocabulary. Analysing the word-focused component of teaching materials is thus a way to shed light on the explicit vocabulary learning opportunities provided in the EFL classroom.

Research within the vocabulary field has rendered insights concerning what facilitates word learning (Nation 2011). For example, it has been suggested that vocabulary development should follow a frequency principle (e.g. Vilkaitė-Lozdienė and Schmitt 2020), where beginner learners mainly concentrate on high-frequency words and more advanced learners also on words of lower frequency (Schmitt and Schmitt 2014). Words given explicit attention should thus be determined based on their frequency in English and the learners' vocabulary size. Vocabulary research has also found that what learners do with words impacts the chances of learning (Laufer 2020). The Involvement Load Hypothesis (ILH; Laufer and Hulstijn 2001) is a framework developed to evaluate whether a task is conducive to learning. The ILH posits that the more mental effort required when working with a word, the more likely the student is to remember the word. For example, if learners use a word in a context, they are more likely to remember it than if they have merely translated the word. These insights from research can be used to examine teaching materials and the extent to which they support students' learning.

While the vocabulary component of teaching materials has been the object of some investigation from the perspective of texts and the input they provide, (e.g. Sun and Dang 2020; Yang and Coxhead 2020), research concerning the exercises in EFL teaching materials is scarce (see, however, Brown 2011; Nordlund and Norberg 2020). More research is thus needed to understand the contribution of explicit word-focused tasks to students' vocabulary development in the classroom. The present study illuminates vocabulary learning opportunities in the EFL classroom by investigating the vocabulary exercises in three series of Swedish EFL intermediate materials. The analysis utilises a corpus-based method and the ILH to map the target vocabulary and the learning conditions. The study thus contributes with insights into an area that so far has been given little attention and also shows how the ILH and corpus-based methods can be used to further the analysis of teaching materials.

## Aim and research questions

The aim of the study is to map the task design in word-focused exercises in Swedish EFL materials and the vocabulary learning opportunities they provide. The research questions addressed are:

- What characterises the target vocabulary in the exercises, in terms of frequency distribution?
- What conditions for learning are provided in the exercises?

## Theoretical framework

### *Word frequency as an indication of usefulness for language learners*

The target vocabulary analysis was guided by the contention that word frequency indicates the usefulness of vocabulary for a language learner. A frequency-based approach ranks words according to

how often they occur in the target language and posits that the more often a word occurs, the more useful it will be to a language learner (cf. Webb and Nation 2017). Many researchers have therefore argued that word frequency can be used as a pedagogical guideline when deciding on target vocabulary for students (e.g. Laufer and Nation 2012; Vilkaitė-Lozdienė and Schmitt 2020). In order to establish the frequency of a word, corpus-based word lists are often used (Nation 2016), where words are ordered in frequency bands. The first band encompasses the thousand most frequent words, the second the 1001–2000 most frequent words and so on. These lists are available to teachers and materials developers and can thus facilitate a frequency approach in the classroom.

In terms of establishing a suitable vocabulary target, Nation (2022) argues that it is important that a language learner first acquires the high-frequency words of the language, which in his definition encompass the 2000 most frequent words. According to him, these words, together with suitable academic and technical vocabulary, should be central in the EFL classroom. Schmitt and Schmitt (2014) argue that this divison is too narrow and propose a now widely used framework with high- (1–3000 most frequent words), mid- (3001–9000) and low-frequency (9001 and beyond) words instead. They recommend that not only the high-frequency words should be of interest in the language classroom but that mid-frequency vocabulary also warrants pedagogical attention as these words prepare students for authentic encounters with language. Milton (2022) warns against focusing too much on the high-frequency words when planning a language course, as they do not suffice to reach proficiency in the language. He proposes that less frequent vocabulary typically comprises the content-specific and topical words that learners need for communication. It is thus reasonable to assume that a language learner should seek to initially learn the high-frequency words of the language and progress to mid-frequency vocabulary when reaching an intermediate level (see, e.g. Milton 2010).

### *Involvement load hypothesis reflecting vocabulary learning conditions*

The present study utilised a modified version of the Involvement Load Hypothesis (Laufer and Hulstijn 2001) to examine the vocabulary learning conditions in the exercises investigated. The ILH is an approach that highlights that learning is impacted by task design and what learners do with words. The ILH draws on the seminal psychological work of Craik and Lockhart (1972) and later Craik and Tulving (1975) who introduced the idea that learning is not determined by the time spent on the target word but rather on the mental activity of the learner. For instance, if a learner is asked to determine whether a word is capitalised or not, the engagement required to fulfil the task is slight. In contrast, if a learner has to decide if a word fits in a sentence, more elaborate engagement is necessary and the chances of retention increase. The ILH operationalises the idea that the quality of the activity is determining in three factors that are seen as conducive to learning, one motivational factor (Need) and two cognitive factors (Search and Evaluation). The motivational factor Need can be absent or present to a moderate or strong degree in the framework. The levels of presence are based on whether the need to perform the task is imposed by an external agent (moderate) or by the learners themselves (strong). As all tasks investigated come from a teaching material, the need is moderate. Therefore, the factor was disregarded in the analysis.

The present study used the two cognitive factors in the ILH and Nation and Webb's (2011) additional factor of Retrieval to analyse learning conditions. Retrieval was added because the exercises could also deal with previously encountered words, which this factor reflects in contrast to the original ILH factors. The first factor, *Search*, reflects whether a learner has to look up a target word in a task. Presence of this factor can be facilitative for learning as looking up a word entails paying attention to and thus engaging with it. To exemplify, a task providing Search could be one where students are asked to look up either the form or meaning of a word in, for example, a dictionary (Laufer and Hulstijn 2001). Similar to Search, Retrieval also illuminates how the learner accesses the target words. However, while Search deals with unknown words and a process of finding them in an external source, Retrieval indicates whether a learner has to retrieve a word from memory. Nation and

Webb (2011) divide Retrieval into two degrees, productive and receptive. Productive retrieval, which occurs when a student retrieves the L2 form (e.g. translating words into the target language), requires more cognitive effort than receptive retrieval where the meaning of the word is retrieved (e.g. defining an L2 word). Accordingly, productive retrieval is likely to support vocabulary learning more than receptive retrieval (Nation and Webb 2011). Finally, the third factor Evaluation shows whether the learner needs to use or evaluate the target word in a task. The ILH distinguishes between moderate and strong degrees of Evaluation. While moderate evaluation reflects when words are used in given contexts, such as fill-in-the-blanks exercises, strong evaluation indicates independent use, as in sentence writing. While both kinds of Evaluation are likely to support learning, the ILH posits that the impact of using words in original contexts is stronger, as it entails more cognitive processing in, for instance, choosing suitable collocations to fulfil the task (Laufer and Hulstijn 2001). The three factors described here (i.e. Search, Retrieval and Evaluation) are seen as indicative of different learning conditions and also used as categories in the analysis.

## Literature review

Textbook studies from a vocabulary perspective have primarily focused on the lexical profile of texts and whether the vocabulary in texts is suitable for the intended group of learners. Sun and Dang (2020), as an example, found that while Chinese high school students generally master the 2000 most frequent words, a considerably larger vocabulary is required to fully understand the texts in the eleven high school textbooks they studied. The textbooks part of their study provides exposure to about 63% of words from the third band, leaving almost 40% unattended, although these should be among the most important words for these learners. They thus conclude that the textbooks do not encompass input suitable for the target learners and that this may severely hamper their language learning. A similar conclusion was drawn by Alsaif and Milton (2012) in their evaluation of 22 Saudi Arabian intermediate EFL textbooks. While the target students need exposure to mid-frequency words, the materials only comprise about 50% of the 5000 most frequent words. In a Swedish context, Norberg and Nordlund's (2018) investigation of seven EFL textbooks for young learners revealed that only 40% of the words come from the first frequency band. Similarly, Nordlund (2015) analysed three EFL textbooks in a series for young learners and found that between 16% and 22% of the words are not from the first two frequency bands. Given that the target students are beginner learners, both Swedish studies conclude that the proportion of high-frequency vocabulary is surprisingly low (see, however, Milton's [2022] critique against focusing on high-frequency words). These textbook analyses reported here indicate that the vocabulary component of textbooks is generally not adapted to the intended group of learners, which questions the contribution of teaching materials to word learning in the EFL classroom.

Studies have also investigated the vocabulary included in word lists in teaching materials, as they highlight intended target vocabulary. For instance, Tschichold (2012) focused on word lists in her analysis of a series of French textbooks used in the UK. She found that the number of words presented in the materials is not sufficent to support students in reaching a B2 level of proficiency, as they aim to do. She also found that the target vocabulary is not presented in a way that facilitate learning, with limited repetition and considerable semantic grouping. Similarly, Milton and Hopwood (2022) studied a series of French textbooks in the UK and they found even fewer words in focus than Tschichold's (2012) study ten years before. They suggest that the vocabulary uptake from the materials is likely to be very limited and that the learning support provided is inadequate. As for the support given to younger learners, Konstantakis and Alexiou (2012) have investigated the vocabulary lists in beginner EFL textbooks in Greece. Their study also found that the words given explicit focus in lists are not sufficent for reaching the indended level of proficiency. These studies suggest that the explicit vocabulary component is not systematically considered and planned with the group of learners in mind and that the learning uptake from using these teaching materials is likely to be insufficient.

Analyses of task design in teaching materials with a vocabulary perspective are scarce, but a few studies warrant attention here. Brown (2011), for example, analysed vocabulary exercises in nine English textbooks in terms of what kind of knowledge development they support. The results show that only a few aspects of word knowledge, such as form-meaning connection and grammar, are covered in the textbooks, which he argues could impact negatively on students' learning . Another approach was adopted by López-Jiménez (2009) in her analysis of the word-focused exercises in twelve EFL textbooks. Her analysis looked at how students have to use target vocabulary to complete a task. She found that the most common kind of task was closed exercises, that is, where students have to use or manipulate words in predetermined ways, for instance gap-filling. Moreover, almost no exercises analysed in her study had a communicative design, where students have to use target vocabulary with a clear purpose, such as producing text in groups. She concludes that this is a flaw in task design, as students primarily practise words in inauthentic and non-meaningful ways which is unlikely to lead to deep and lasting vocabulary learning. Converging results were found by Nordlund and Norberg (2020), who used the same typology as López-Jiménez to analyse exercises in seven Swedish primary EFL materials. Their analysis showed that closed tasks constitute a large proportion of the exercises. These studies indicate that tasks in EFL teaching materials are not constructed in ways that support students in using words in original ways.

Relevant to the present analytic approach are also empirical studies evaluating the learning conditions in the modified ILH framework and their contribution to learning. Yang et al. (2017), for instance, investigated the relationship between learning outcome and Evaluation by studying the effects of three writing tasks containing no, moderate and strong Evaluation (writing without required target word use, fill-in-the-blanks and original sentence writing, respectively). In their experiment, 81 Chinese EFL students completed one of the three tasks and the results indicated that the students who have to use target words learn more vocabulary (see also Eckerth and Tavakoli's [2012] converging results, based on an experiment with 30 EFL learners in the UK). Further, Yanagisawa and Webb (2021b) performed a meta-analysis of 42 studies testing the ILH which revealed that while Evaluation is strongly connected to word retention, Searching for words does not appear to impact learning. Retrieval has also been found to have a positive relation to vocabulary development. Barcroft (2015), as an example, conducted an experiment concerning the effects of retrieval where 74 Spanish EFL learners read a text. Half of the group encountered target words and were provided with translations in a text, while the other half only saw the translation once and then had to retrieve the word form in subsequent encounters. The results show that having to retrieve the target word increases word learning. Similarly, Strong and Boers (2019) studied the impact of retrieval exercises on phrasal verb learning. 145 Japanese EFL learners were divided into groups, practicing target vocabulary either with or without retrieval opportunities. They found larger gains for the learners who had engaged in retrieval practice (see also Barcroft's [2007] study indicating higher retention when learners have an opportunity to retrieve target vocabulary). These empirical studies have thus shown that providing retrieval or use in tasks is likely to facilitate students' learning.

## Material and methods

### *Material*

This study analyses three series of commonly used EFL materials for Swedish secondary school (students aged 13–15). The series were chosen following an informal survey among teachers concerning thetextbooks they use. The materials studied were *Awesome* (Childs-Cutler and Gentili Cronholm 2017, 2018; Childs-Cutler, Gentili Cronholm, and Niemann 2016), *Good Stuff Gold* (Coombs et al. 2012, 2013, 2014) and the digital teaching material *Digilär* (Gode 2014). It should be noted that *Digilär* comes in two versions – Standard and Advanced. In many cases, the exercises are the same, but when they differ, the Standard version of the exercise was analysed. The source of the

**Table 1.** Number of vocabulary-focused exercises in the materials.

| | *Awesome* | *Digilär* | *GS*[a] *Gold* |
|---|---|---|---|
| Year 7 | 56 | 35 | 91 |
| Year 8 | 44 | 36 | 90 |
| Year 9 | 46 | 26 | 113 |
| Total | 146 | 97 | 294 |

[a]Good Stuff.

data was the workbooks and the exercises accompanying the texts. Any possible additional resources were not considered as they were not as central a part of the materials. A vocabulary exercise was defined as a task that the material labels as a word activity (typically by being an activity under the heading 'Vocabulary' in the work book) or where the instructions explicitly drew attention to vocabulary, such as 'use the words in the circle to describe the people in the pictures' (Childs-Cutler, Gentili Cronholm, and Niemann 2016: 18). Although this activity asks students to use words and has an explicit word focus, it was not labelled as a vocabulary activity in the workbook. By including these activities as well, it was judged that all activities constructed with the intention of supporting vocabulary development were considered in the analysis. Much in the same vein, grammar exercises were excluded as their main purpose was to practise grammar, not vocabulary. In Table 1, the total number of tasks analysed is presented.

In order to analyse the target vocabulary covered in the exercises, word lists with the lexical items provided in the key to the exercises were compiled. Following Kremmel (2016), the target words were lemmatised prior to analysis. Lemmatisation entails converting words into lemmas. A lemma is a base word and its inflectional forms (e.g. *walk*, *walks, walking, walked* are all encompassed by the lemma WALK). The words in the vocabulary list were thus converted to their lemma form disregarding possible inflectional variation. Proper nouns were disregarded as they are not target vocabulary in the same way as, for example, common nouns. SketchEngine[1] (Kilgarriff et al. 2004) was used to compile the target vocabulary lists and prepare them for analysis.

## Analysis

The analysis of the task design focused on the frequency distribution of the target vocabulary (RQ1) and the learning conditions provided in the task (RQ2), as defined by the modified ILH framework. To establish the frequency of the target words in general English, the target word lists compiled were run through VP-Compleat on the Lextutor website (Cobb n.d.), where the frequency of the words was determined in relation to the BNC-COCA 1–25 K word list (Nation 2017). In this way, the words focused on in tasks could be assessed in relation to the intended group of learners, following the idea that the frequency of a word in general English indicates the usefulness of the word. As the material was vocabulary exercises for secondary school students in Sweden, where they are expected to be on at least A2 level when starting secondary school, the contention was that students were likely to know the high-frequency words in English and that mid-frequency words were also suitable target words for their continued progression (cf. Qian and Lin 2020; Schmitt and Schmitt 2014). The results of the target word analysis are not presented band by band; instead Schmitt and Schmitt's (2014) division into high- (first 3000 words), mid- (3001–9000 words) and low-frequency (9001–) words was used to provide an overview of the distribution of the vocabulary.

To analyse the learning conditions in the exercises, a modified version of the ILH was utilised where the cognitive factors Search and Evaluation from the original framework (Laufer and Hulstijn 2001) and the additional factor Retrieval (Nation and Webb 2011) formed the basis of the analysis. The factors in the framework were used to form a categorisation scheme, which guided the exercise analysis (see Table 2). It should be noted that while traditional ILH analyses provide an index value based on the factors, the ILH factors were used to illuminate different qualitative characteristics of the tasks and no numerical value was assigned to the tasks (cf. Yanagisawa and Webb 2021a). In

**Table 2.** Categorisation scheme for learning conditions in vocabulary exercises.

| Category | Categorisation criteria |
|---|---|
| Search/Retrieval | |
| Absent | Form and meaning are provided |
| Present Search | Having to look up an unfamiliar word in a dictionary or the text |
| Receptive Retrieval | Form is provided, student has to retrieve the meaning |
| Productive Retrieval | Meaning is provided, student has to retrieve the form |
| Evaluation | |
| Absent | The words are not used or elaborated |
| Moderate | The word is used in a given context or the understanding is elaborated |
| Strong | The word is used in an original context |

line with the ILH framework, the general factors were qualified into different degrees, based on their likely contribution to learning, ranging from absence to strong presence. Both Search and Retrieval are factors that reflect how the target word is accessed (i.e. by looking up a word or retrieving it from memory) and therefore, they were combined into one category, as they are mutually exclusive. Each vocabulary exercise was thus categorised in relation to Search/Retrieval and Evaluation and received two labels, for example, 'No Search/Retrieval, Moderate Evaluation'. When evaluating the results, the general idea was, in line with the ILH, that the greater the prominence of these factors, the better the chances for learning.

The categorisation was conducted in NVivo (QSR International Pty Ltd. 2020) where all the exercises were coded with one Search/Retrieval category and one Evaluation category (see Table 3). First, the distribution of each category was established to show how often the different learning conditions were provided in vocabulary exercises. However, as each exercise was given two labels, the synchronous occurrence of the categories was also investigated, in order to reflect typical patterns in task design. For example, all 'No Search/Retrieval' exercises cross-referenced with each degree of Evaluation was calculated, to show how often learning conditions co-occur. In this analysis, not only the proportion of exercises belonging to each category was established; a qualitative analysis of each task was also perfomed. The results thus present quantitive information about the distribution of the learning conditions and a description of the task design patterns in the materials.

**Table 3.** Example of categorisation.

| Exercise description | Categories |
|---|---|
| Match the word with its translation. | No Search/Retrieval (Form and meaning provided)<br>No Evaluation (No use required) |
| Find out what the following words are called in English. | Present Search (Dictionary use required)<br>No Evaluation (No use required) |
| Choose the right word. Choose the best words and fill in the blanks in the text. (L2 forms provided) | Receptive Retrieval (L2 form provided)<br>Moderate Evaluation (Words used in given context) |
| Solve the crossword. (L1 forms provided) | Productive Retrieval (L1 form provided)<br>No Evaluation (Words are not used in context) |

## Results

### *Target vocabulary*

In order to illuminate the vocabulary learning opportunities in the exercises, the target vocabulary was analysed in terms of its frequency distribution in general English. As can be seen in Table 4, a large proportion of the target words in all the materials are high-frequency words, followed by mid-frequency and then a low proportion of low-frequency words.

**Table 4.** Frequency distribution of target lemmas.

| | High | Mid | Low | Total |
|---|---|---|---|---|
| *Awesome* | | | | |
| *7* | 393 (75.9%) | 88 (17%) | 37 (7.1%) | *518 (100%)* |
| *8* | 343 (72.4%) | 91 (19.2%) | 40 (8.4%) | *474 (100%)* |
| *9* | 414 (63.1%) | 156 (23.8%) | 86 (13.1%) | *656 (100%)* |
| *Digilär* | | | | |
| *7* | 252 (67.4%) | 77 (20.6%) | 45 (12%) | *374 (100%)* |
| *8* | 221 (57.1%) | 113 (29.2%) | 53 (13.7%) | *387 (100%)* |
| *9* | 164 (66.7%) | 69 (28%) | 13 (5.3%) | *246 (100%)* |
| *GS Gold* | | | | |
| *B* | 621 (82.1%) | 106 (14%) | 29 (3.8%) | *756 (≈100%)* |
| *C* | 555 (76.6%) | 134 (18.5%) | 36 (5%) | *725 (≈100%)* |
| *D* | 626 (76.9%) | 157 (19.3%) | 31 (3.8%) | *814 (100%)* |

In contrast to analyses of running text, where a large proportion will be high-frequency words due to the nature of language, the target vocabulary here is individual words in, for instance, fill-in-the-blanks exercises. This means that the frequency distribution cannot be attributed to the nature of English, as each word has been picked out explicitly. Given that the students are likely to know many high-frequency words already, it is noteworthy that the proportion of high-frequency words exceeds 50% of all target words in all the materials. In each *Good Stuff Gold* book, over 70% of all the lemmas practised come from the high-frequency bands. The lowest proportion of high-frequency vocabulary is found in the *Digilär* series, where the proportion ranges from 57.1% to 67.4%. When considering the kind of vocabulary that is likely to increase students' vocabulary and be useful, namely mid-frequency words, the proportions range between 14% and 29.2%, as can be seen in Table 4. Here, *Digilär* stands out as well, with the highest proportion of mid-frequency words, followed by *Awesome* and then *Good Stuff Gold*, where the proportion never exceeds 20%. These results suggest that the words that learners practise are to a considerable extent likely to already be known by them.

Besides considering the proportion of useful vocabulary in the materials, the raw frequency of target words can be used to illuminate how much vocabulary students can learn from working with the word-focused exercises. As shown in Table 4, the number of mid-frequency lemmas range between 69 and 157 items per book (and year) in the different series. It should also be noted that *Good Stuff Gold* has the lowest proportion of mid-frequency words but when considering the raw figures, the series comprises the largest number of mid-frequency words (397 words in the series), which means that, of the materials studied, it provides opportunities for learning the most mid-frequency words. In contrast, *Digilär* has the lowest raw number, a total of 259 words over three books. If the intended learners do not know any of the mid-frequency words that constitute the target vocabulary, they are given the opportunity to practise between 259 and 397 novel and suitable words in the vocabulary exercises during secondary school. As the vocabulary learning demands are high for use and comprehension of English, this proportion of novel words appears low for three years of explicit study.

## *Learning conditions*

In the following section, the results concerning the provision of learning conditions are presented. The analysis focused on the conditions operationalised as the categories Search, Retrieval and Evaluation and they highlight what students have to do with the target vocabulary to complete a task. First, the proportion of exercises that comprises each category is presented to provide a picture of the extent to which different learning conditions are prominent in the teaching materials. Second, patterns concerning the synchronous occurrence of the categories are presented to illuminate how different learning conditions are provided in the same exercises and thus how different kinds of exercises, as a whole, support learning. The results are reported for each series of teaching materials, not the individual books, as no distinctive differences were found within the series.

**Table 5.** Distribution of search/retrieval in the exercises.

| | *Awesome* | *Digilär* | *GS Gold* |
|---|---|---|---|
| No Search or Retrieval | 46 (31.5%) | 42 (43.3%) | 56 (19.1%) |
| Present Search | 25 (17.1%) | 0 (0%) | 49 (16.7%) |
| Receptive Retrieval | 54 (37%) | 25 (25.8%) | 46 (15.6%) |
| Productive Retrieval | 21 (14.4%) | 30 (30.9%) | 143 (48.6%) |

### *Distribution of learning conditions in the materials*

As a first step, the distribution of the categories in the materials was mapped. As can be seen in Table 5, the exercises studied generally provide opportunities to search for or retrieve target words. This is especially the case for *Good Stuff Gold*, where more than 80% of the tasks are designed in this way. In contrast, *Digilär* never requires students to look for words and over 40% of the exercises in the series are not constructed in a way that requires students to search for or retrieve words.

While over 50% of the exercises in all the materials studied provide opportunities for retrieval, the kind of retrieval promoted, and thus the contribution to learning, differs substantially between the materials. Productive Retrieval is promoted in almost half of the exercises in *Good Stuff Gold*, while the corresponding proportion is 30.9% for *Digilär* and 14.4% for *Awesome*. This was, for example, exercises where the students are asked to provide a word in English, prompted by a Swedish translation. As for Receptive Retrieval, *Awesome* stands out with 37% included in this category, which, for instance, corresponds to exercises where students translate a word into Swedish, with a prompt in English. Depending on what teaching material a student uses, the retrieval opportunities thus vary and consequently also to what extent learning is facilitated.

The proportion of exercises providing Evaluation is quite similar in the materials. As can be seen in Table 6, the three series of materials share a pattern where No Evaluation is most common, followed by Moderate Evaluation and last, Strong Evaluation. This means that students are generally not provided with the opportunity to engage with target vocabulary in this way, as between 67.7% and 79.4% of the tasks do not require students to use vocabulary.

The proportion of the exercises promoting Moderate Evaluation ranges between 14.4% (*Digilär*) and 19.4% (*Good Stuff Gold*). The prominence of this condition is thus quite stable regardless of the series. These exercises are typically in the form of fill-in-the-gaps exercises, where students have to use a word in a given context. Greatervariation was found for Strong Evaluation, which entails a larger contribution to learning. As shown, only 6.2% of the tasks in *Digilär* are designed in a way that provides this condition. The other two series have a similar proportion, around 13%. Overall, Strong Evaluation is the category occurring the least in all the materials. An exercise requiring Strong Evaluation is, for example, where students are given a number of words in English and are asked to write their own sentences, using these words. Taken together, the general distribution of the two learning conditions in focus shows that teaching materials are more likely to promote retrieval than use. This means that while students are given extensive opportunities for retrieving words, they are less likely to practise vocabulary by using the target words in context.

**Table 6.** Distribution of evaluation in the exercises.

| | *Awesome* | *Digilär* | *GS Gold* |
|---|---|---|---|
| No Evaluation | 99 (67.8%) | 77 (79.4%) | 199 (67.7%) |
| Moderate Evaluation | 28 (19.2%) | 14 (14.4%) | 57 (19.4%) |
| Strong Evaluation | 19 (13%) | 6 (6.2%) | 38 (12.9%) |
| Total | 146 (100%) | 97 (100%) | 294 (100%) |

### *Synchronous occurrence of learning conditions*

To further illuminate the learning conditions, the analysis also focused on the extent to which the categories occur together in tasks. While the distribution described above shows general tendencies concerning what kind of learning is promoted in the materials, it does not reflect the exercises in a holistic way as they were analysed in relation to both Search/Retrieval and Evaluation. Thus, it is not sufficient to only consider the categories separately. In the following presentation of their synchronous occurrence, the exercises are grouped according to their Evaluation category and each table shows how the Search/Retrieval categories are distributed over exercises belonging to the same Evaluation category.

As previously established, the materials seldom provide opportunities for using target words, as almost 70% of the exercises in each material were categorised as not involving any kind of Evaluation condition. When investigating what Search/Retrieval opportunities the exercises contribute to, it was found that the most common pattern in *Awesome* and *Digilär* was co-occurrence with neither Search nor Retrieval (see Table 7), which means that both form and meaning of the target words are supplied. In *Digilär*, this is particularly prominent as a majority of the exercises are designed in this way. They are commonly in the form of matching exercises, where students are asked to match a target word with a translation, a definition or an image. When completing the task, the students do not use the target words and, as they only have to match form and meaning (in the form of translation or definition); they do not need to retrieve the target vocabulary either.

As can be seen in Table 7, another distinct pattern for No Evaluation exercises is being combined with Productive Retrieval. This is especially the case for *Good Stuff Gold*, where 53% of the exercises were constructed in this way. Tasks providing this combination of learning conditions are typically de-contextualised exercises where learners have to produce individual words, prompted either by a definition or a translation. As an example, a common task type in *Good Stuff Gold* (44 exercises) is crosswords, where the students complete the crossword by producing target vocabulary. It should be noted that this combination is relatively common in the other materials as well, and this task design can thus be seen as a general pattern.

When investigating the exercises providing Moderate Evaluation, it was found that *Awesome* and *Digilär* typically also require receptive retrieval of target vocabulary in these tasks (see Table 8). In practice, this means that the fill-in-the-blanks exercises are accompanied by a word list with the L2 forms. Thus, students do not need to produce the words to complete the task; they only have to retrieve the word meaning and evaluate where the word would be appropriate in the sentence context. In both materials, a considerable proportion of the tasks requiring Moderate Evaluation were constructed in this way, 64.3% in *Awesome* and 85.7% in *Digilär*.

**Table 7.** Distribution of search/retrieval conditions in no evaluation exercises.

| | *Awesome* | *Digilär* | *GS Gold* |
|---|---|---|---|
| No Search or Retrieval | 35 (35.4%) | 41 (53.2%) | 33 (16.5%) |
| Present Search | 20 (20.2%) | 0 (0%) | 41 (20.5%) |
| Receptive Retrieval | 24 (24.2%) | 9 (11.7%) | 20 (10%) |
| Productive Retrieval | 20 (20.2%) | 27 (35.1%) | 106 (53%) |
| Total | 99 (100%) | 77 (100%) | 200 (100%) |

**Table 8.** Distribution of search/retrieval conditions in moderate evaluation exercises.

| | *Awesome* | *Digilär* | *GS Gold* |
|---|---|---|---|
| No Search or Retrieval | 6 (21.4%) | 1 (7.1%) | 4 (7%) |
| Present Search | 3 (10.7%) | 0 (0%) | 8 (14%) |
| Receptive Retrieval | 18 (64.3%) | 12 (85.7%) | 9 (15.8%) |
| Productive Retrieval | 1 (3.6%) | 1 (7.1%) | 36 (63.2%) |
| Total | 28 (100%) | 14 (100%) | 57 (100%) |

*Good Stuff Gold*, on the other hand, includes many Moderate Evaluation exercises that promote productive retrieval (63.2%). While the task design is similar in the different materials, in the sense that the general structure is a fill-in-the-blanks exercise, the tasks in *Good Stuff Gold* encompass a word list in Swedish where the students first have to translate the target words into English and then evaluate which word is suitable in which sentence gap. This difference in task design shows how small changes can improve the learning opportunities in a task.

As can be seen in Table 9, the exercises providing Strong Evaluation, where students have to use words in an original context, typically also require them to retrieve the meaning of the target words. The synchronous occurrence verges on or exceeds 50% in all the materials studied. Here, students are typically given a list of L2 word forms and are asked to use them in original ways, which means that the students need to understand the meaning of the target words and in addition be able to use them appropriately. Typically, the exercises are either focused on students writing sentences with target words or on students re-telling a story using a word list.

Another pattern is prominent for the Strong Evaluation exercises in *Good Stuff Gold* as well, namely to present learners with both form and meaning, as over 50% do not involve Search or Retrieval. These exercises typically follow a previous exercise where the learner is asked to translate a word. The students thus have the target words and their translations at hand and are then asked to use those words to write sentences. Finally, it should be noted that only four tasks in the nine teaching materials provide the highest degree of both Evaluation and Retrieval. It is thus clear that word-focused tasks in the materials studied are seldom constructed in a way that requires substantial mental effort, which is likely to negatively impact the learning effects of the tasks.

**Table 9.** Distribution of search/retrieval conditions in strong evaluation exercises.

| | *Awesome* | *Digilär* | *GS Gold* |
|---|---|---|---|
| No Search or Retrieval | 5 (26.3%) | 0 (0%) | 19 (51.4%) |
| Present Search | 1 (5.3%) | 0 (0%) | 0 (0%) |
| Receptive Retrieval | 12 (63.2%) | 4 (66.7%) | 17 (46%) |
| Productive Retrieval | 1 (5.3%) | 2 (33.3%) | 1 (2.7%) |
| Total | 19 (100%) | 6 (100%) | 37 (100%) |

## Discussion

The present study set out to investigate whether vocabulary exercises in three series of Swedish EFL materials support learning for intermediate learners by analysing the target vocabulary and learning conditions provided. The results reveal that the tasks encompass both aspects that are likely to facilitate learning for the intended group of students and aspects that are unlikely to contribute to learning. The primary supportive feature of the exercises is the prominence of retrieval opportunities. Considering that empirical studies indicate a positive impact of retrieval on vocabulary development (e.g. Barcroft 2015; Strong and Boers 2019), the finding that a majority of exercises require students to retrieve words suggests that the task design, in this sense, is conducive to learning. In contrast, the study also identifies areas where the tasks are not constructed in a facilitative way. This is particularly notable in the focus on high-frequency words (cf. Schmitt and Schmitt 2014) and the low proportion of exercises requiring students to use vocabulary in original ways (e.g. Yang et al. 2017).

Considering that the material is vocabulary exercises where developers have consciously decided on the target vocabulary, it is noteworthy that they mainly provide practice of words that the intended group of students are expected to already know, namely high-frequency words (Skolverket 2012). This suggests that the task design is not adapted to the target students in terms of the frequency profile of the target vocabulary. Previous studies have also found a lack of vocabulary adaptation to the intended learners, although in terms of texts (e.g. Norberg and Nordlund 2018; Sun and Dang 2020), and Alsaif and Milton (2012) go so far as suggesting that not considering learners'

extended target vocabulary needs in textbooks will hamper students' vocabulary development. It should be noted, however, that these implications are based on the vocabulary size of an average student. There will of course be students in the EFL classroom with smaller vocabulary sizes and for them, a focus on high-frequency words can be facilitative. Nevertheless, granted that teaching materials are supposed to cater to the needs of the average student, the results suggest that the exercises are not constructed with the intended learners in mind. Moreover, focusing on high-frequency words could be justified if the exercises enrich the learners' knowledge by focusing on different aspects of word knowledge or fluency development, that is, by adding to learners' vocabulary depth. However, when the focus on high-frequency is considered together with the finding that a majority of exercises do not involve any elaboration or use of the word (i.e. the category Evaluation), it can be concluded that development of vocabulary depth is not regularly supported in the exercises either. This means that the vocabulary learning opportunities are likely to be limited, given that regardless of how well-structured a task is in terms of learning conditions, it will not support students if the vocabulary practised does not increase their vocabulary size.

As mentioned, exercises promoting the use of target vocabulary were not prominent in the teaching materials studied. Considering that using words is put forward as the strongest determinant for word learning (Yanagisawa and Webb 2021b), this is a surprising finding that calls the role of the exercises into question. Moreover, when analysing the exercises requiring no use of vocabulary, it was striking that they, to a considerable extent, did not require retrieval either. Although they may play a role in providing repetition of target vocabulary (cf. Folse 2006) or presenting target vocabulary (cf. Boers, Dang, and Strong 2017), it is questionable whether vocabulary exercises should focus solely on repetition or presentation, given the limited classroom time that can be used for language-directed activities (Nation 2007). However, the analysis also showed how tasks requiring no use can be made useful in the classroom, namely by promoting productive retrieval instead (cf. Nation and Webb 2011). This was a distinct pattern in the materials studied, for example in the prominence of crosswords. While researchers such as López-Jiménez (2009) have suggested that providing tasks without opportunities for use may negatively impact students' language learning, it could be argued that ensuring productive retrieval in these tasks could make them facilitative in the classroom. It has been found that short, achievable tasks are likely to motivate language learning (Dörnyei and Muir 2019) and thus, this combination may play a role in ensuringmaterials used are varied and motivating. A variation in exercises could contribute to the students' experiences and motivation, although it may not optimise learning conditions.

This study used corpus-based and ILH-informed methods to analyse vocabulary exercises and the results show the usefulness of these methods for materials research. By investigating both the target vocabulary and the way that the words are practised, the analysis of the vocabulary learning opportunities becomes more extensive and representative. The present study suggests that an understanding of word-focused exercises should encompass both perspectives, as a task where students engage with target vocabulary will not contribute to their learning if the target vocabulary is not useful to them, and vice versa. As mentioned, few studies have so far investigated vocabulary tasks, which may, in part, be a consequence of few established methods for doing so (see, however, Brown 2011; López-Jiménez 2009). The present study has shown that using the ILH and frequency as analytic frameworks is a way of reaching valuable insights concerning the vocabulary learning opportunities in the EFL classroom. When considering the findings in light of Bergström et al.'s (2023) results, namely that Swedish materials developers commonly do not prioritise vocabulary, it is apparent that research-based principles have to be given a greater role in the development process. In evaluating the results, a limitation has been the absence of general guidelines concerning how a good material should be designed with regards to vocabulary tasks. It has therefore been difficult to evaluate whether the proportions of exercises providing different conditions are sufficient for the group of learners targeted. To facilitate materials development and teaching materials analyses, vocabulary research could seek to establish clear guidelines concerning what constitutes an optimum collection of exercises.

Although this study is based on a limited sample, consisting of three series of EFL materials, the results are important. As teaching materials have a central role in the classroom, the structure of tasks is indicative of the vocabulary learning opportunities in school. EFL learners face a considerable learning task and working with well-structured vocabulary exercises is a way of making this burden lighter. The study shows that exercises in teaching materials are not unequivocally constructed to support learning and an implication of these results is that EFL teachers need to provide more opportunities outside the materials, especially by working with mid-frequency words and use in context. EFL teachers can also utilise the original or modified ILH framework as a tool to assess the vocabulary activities they include in the classroom, to ensure that time is spent on supportive tasks. This study sheds light on an area of vocabulary research mainly unstudied, namely the learning opportunities in explicit vocabulary learning activities in the classroom. Additional studies are encouraged to illuminate the issue further. Studies could apply a similar methodology on teaching materials in other contexts or aimed at other age groups. Another area of study could be combining the two methods and investigating what kinds of words are practised under different learning conditions.

## Conclusion

The study has shown that vocabulary exercises in Swedish EFL teaching materials offer limited support to students' vocabulary development. It is true that they provide good conditions for retrieving vocabulary, which is likely to facilitate learning and can also be a way to include motivating tasks in materials. However, the main findings of the study, namely that most target words are from high-frequency bands and the scarcity of exercises promoting use, show that they, to a large extent, are not designed in a way that supports other aspects of word learning. It can be concluded that the vocabulary tasks do not appear to be constructed with a systematic and research-based approach to vocabulary, in terms of word choice or task design. The study thus shows that vocabulary needs to become a priority in materials development, for both publishers and developers, if word-focused exercises are to support students' learning and make a significant contribution to the EFL classroom.

## Note

1. http://www.sketchengine.eu.

## Disclosure statement

No potential conflict of interest was reported by the author(s).

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