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Examining vocabulary learning strategies and vocabulary size among Syrian EFL learners

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ABSTRACT

Research on vocabulary learning strategies plays a crucial role in understanding how individuals acquire and expand their vocabulary knowledge. While ample evidence indicates that Arab EFL learners possess a limited vocabulary size, there is a scarcity of studies focusing on Syrian EFL learners. Furthermore, investigating how vocabulary learning strategies may contribute to vocabulary knowledge remains relatively underexplored. This study has a three-fold objective: (i) to identify the vocabulary learning strategies most commonly employed by Syrian EFL learners, (ii) to examine the vocabulary size of Syrian EFL learners, and (iii) to investigate the impact of these strategies on vocabulary size. Two test instruments were used: the Vocabulary Learning Strategies Questionnaire (VLSQ) and the Vocabulary Size Test (VST). The VLSQ assessed participants' strategy use, while the VST served as a diagnostic tool for measuring their vocabulary size. Our results revealed that Syrian secondary school EFL students generally exhibit a moderate use of learning strategies, with social learning strategies being the most frequently employed. Additionally, the results indicated that participants possess a "low" vocabulary size, with 74% demonstrating proficiency in the range of 2000-3000 words. Correlational analyses further revealed a significant and positive relationship between vocabulary learning strategies and vocabulary size, suggesting that both social and metacognitive strategies contribute more to vocabulary size than other learning strategies. These findings provide valuable insights for educators and policymakers, emphasizing the importance of learning strategies and vocabulary size in language learning and overall proficiency development.

Keywords: Syrian EFL learners; vocabulary learning strategies; vocabulary size

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INTRODUCTION

The acquisition of vocabulary is a complex undertaking in both English as a foreign language (EFL) and English as a second language (ESL) contexts, and vocabulary inadequacy might inhibit their ability to progress academically and to engage in natural conversations (Masrai & Milton, 2021; Szabo et al., 2021). Although different methods have been proposed to teach vocabulary to L2 learners, there is still no clear consensus on the best approach (Schmitt, 2008; Thompson & von Gillern, 2020). Several factors affect vocabulary acquisition, making it difficult to determine the most effective teaching methods for L2 learners (Wu et al., 2024). For instance, it is challenging to determine how much vocabulary is sufficient, as conflicting findings exist in the literature (Getie, 2020; Kidd et al., 2018). Additionally, academic departments often use syllabi and materials that do not consider the current level of students' vocabulary (Csomay & Prades, 2018), which leads to a lack of clear guidelines for teaching vocabulary to second language learners. To this end, recent studies on vocabulary acquisition have placed increasing

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importance on how particular groups of learners may use different strategies to acquire new vocabulary in the target language (Feng & Webb, 2020; Samuelson, 2021). These efforts aim to equip educators with the necessary knowledge to make informed decisions on appropriate and effective teaching methodologies that could help students optimize their vocabulary resources and become independent learners (Al-Omairi, 2020).

Numerous scholars have made extensive efforts to identify and explore the ways in which learners utilize vocabulary learning strategies in their second language acquisition, as evidenced by the substantial body of literature on the topic (e.g., Cook & Mayer, 1983; Oxford, 1990; Schmitt, 2000). Apropos, scholars introduced classifications that outlined the possible strategies that certain learners might utilize when learning new vocabulary. For instance, Cook and Mayer (1983) established that vocabulary learning strategies can be classified into two primary categories: discovery strategies and consolidation strategies. Discovery strategies are believed to prioritize how L2 learners uncover the meaning of the word, while consolidation strategies concentrate on how this meaning is memorized and retained.

Expanding upon the work of Cook and Mayer (1983), Nation (2001) developed a new classification system for vocabulary learning strategies, which includes four major categories: planning, sources, processes, and skill-in-use. The planning strategies primarily concentrate on guiding learners on the selection of appropriate words, emphasizing relevant aspects, and utilizing effective techniques for long-term retention. On the other hand, the source strategies focus on enabling learners to acquire additional information about the word to enhance memorization. This includes examining the structure of the word or inferring its meaning through contextual clues, the use of dictionaries, or identifying cognates from either the first or second language (L1/L2). Learners can also use word retrieval strategies to enhance their ability to recall and use new words in various contexts. Additionally, learners can also develop their English competency in listening, reading, writing, and speaking outside the classroom by utilizing the skill-in-use strategies to apply newly acquired vocabulary effectively.

However, Schmitt (2000) later posited that these aforementioned taxonomies are not exhaustive and do not fully illustrate the diverse array of strategies that learners could utilize, despite the substantial attempts to create a comprehensive classification of strategies for learning vocabulary. In constructing his own taxonomy, Schmitt (2000) referenced Oxford's (1990) classification of language acquisition processes. The six categories of Oxford's (1990) classification scheme for language acquisition techniques are memory techniques, cognitive techniques, compensatory techniques, metacognitive techniques, affective techniques, and social techniques. Schmitt incorporated four of Oxford's techniques, namely the social, memory, cognitive, and metacognitive techniques. Also, he developed a brand-new approach known as the determination technique because he believed Oxford's taxonomy to be inadequate in this area.

Given its critical role in language use and communication, vocabulary knowledge has long been recognized to be essential for language learning (Al-Khasawneh, 2019; Alsahafi, 2023; Szabo et al., 2021). However, Al-Khasawneh (2019) indicated that Arab EFL students have a particularly challenging time acquiring up new English words. Their inadequate vocabulary resource is a result of both the restricted exposure to English language use in their everyday lives and the absence of opportunity for vocabulary acquisition in real-life scenarios. Wu et al. (2021) stated that "L2 learners generally lack the concept of English collocations and often fail to notice collocation restrictions". Besides, according to the significance of vocabulary learning strategies for promoting EFL fluency and English vocabulary competency, the examination of vocabulary learning strategies is imperative since it gives insight into the learners' methods for learning new words, their level of mental awareness, and their capacity to adjust to new learning contexts (Schmitt et al., 2020). Hence, this study looks into the vocabulary learning strategies used by Arab EFL learners, especially Syrian secondary school EFL students who face particular obstacles in mastering English language.

Considering that strategy use is crucial in vocabulary learning (Alahmadi et al., 2018; Al-Shujairi et al., 2019; Fan, 2020; Schmitt, 2019), and due to the representational distinctions made in earlier studies about the application of different types and frequencies of VLSs, it seems that students with different educational backgrounds show different vocabulary learning strategies. Critically, most previous studies have almost exclusively focused either on undergraduate or postgraduate EFL students, but little attention was dedicated to secondary-level students, specifically those in the Syrian context (Al-Omairi, 2020; Alahmad, 2020; Alqarni, 2017; Alshammari, 2020; Altalhab, 2019; Daaboul & Nimehchisalem, 2017; Rabadi, 2016). Therefore, investigating vocabulary learning strategies among school students is necessary for expanding the domain of previous studies, and hence considerations for the generalisability of results to other levels of education in the literature.

Vocabulary size is an important component in language learning and acquisition (Brooks et al., 2021; Masrai & Milton, 2021), but the literature shows lack of studies about the level of vocabulary

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size among Syrian EFL students (Daaboul & Nimehchisalem, 2017). Daaboul and Nimehchisalem (2017) conducted a study focusing on Syrian undergraduate students and their level of word knowledge. The research findings suggest that, on average, the students demonstrated a moderate degree of word knowledge, which was deemed inadequate for their academic level. This highlights the pressing need for further investigations targeting Syrian students across various educational levels and geographical locations. By conducting additional studies in this area, a more comprehensive understanding of vocabulary proficiency among Syrian students can be achieved, facilitating the development of targeted interventions and educational strategies to address their specific needs.

Despite the extensive body of research that examined the use of VLSs among Arab EFL students, there is insufficient evidence about the relationship between VLSs and vocabulary size (Alahmadi et al., 2018). Critically, previous studies predominantly focused either on studying the types of VLSs (Alahmad, 2020; Alqarni, 2017; Alshammari, 2020) or on vocabulary size among EFL learners (Altalhab, 2019). However, a thorough analysis of the interplay between VLSs and vocabulary size among EFL learners continues to be relatively underexplored. To illustrate, Alqarni (2017) and Alahmad (2020)conducted separate studies involving undergraduate students, utilizing a VLS questionnaire based on Schmitt's (2000) taxonomy. The findings revealed that the most frequently employed strategy among students was metacognitive, while the least utilized strategy was memory-related, without examining the effects of using these strategies on vocabulary size. Current research suggests that EFL learners' vocabulary size is influenced by the use of different VLSs (Al-Omairi, 2020; Alahmadi et al., 2018; Fan, 2020), but the evidence supporting this claim is still lacking, specifically in the Syrian context.

All in all, previous studies focused on EFL vocabulary learning among EFL learners with different educational levels and different ethnic backgrounds, including Saudi, Iraqi, Jordanian, Turkish, and Iranian (Al-Omairi, 2020; Alqarni, 2017; Ghalebi et al., 2020; Yigit & Aykul, 2018), but surprisingly there was limited research made on Syrian EFL students (Daaboul & Nimehchisalem, 2017), and hence the replicability of these previous studies is dubious to Syrians. This study tends to bridge the gap and examine the frequency of vocabulary learning strategies among Syrian EFL students, and their vocabulary size. Finding out the vocabulary knowledge and how different VLSs are applied by EFL students can provide important insights to language educators and policymakers in Syria, specifically about the challenges in vocabulary acquisition and how students should overcome these challenges in their learning process. Providing a nuanced understanding of vocabulary learning processes among Syrian EFL learners may also offer specific approaches to address challenges commonly faced by EFL learners worldwide, thus shedding light on effective teaching methodologies that can be adopted internationally.

In light of the aforementioned, we aim to investigate the following research objectives:

1) To examine the types of vocabulary learning strategies more frequently used among Syrian secondary school EFL students
2) To provide an estimate of the vocabulary size among Syrian secondary school EFL students
3) To assess the relationship between vocabulary learning strategies and vocabulary size among Syrian secondary school EFL students

In what follows, we discuss the methodology and instruments that we used to carry out the study.

METHOD

Research design

Our study employed a quantitative research approach and a correlational design. According to Creswell (2009), this design allows investigators to assess the strength and direction of the relationships between variables. This, therefore, aligns with the principal objective of the study, which is to investigate the relationship between participants' utilization of vocabulary learning strategies and their vocabulary size.

Participants

A total of 115 participants took part in our study. All were Syrian secondary school EFL learners studying in public secondary schools in Damascus, Syria. We employed a purposive sampling technique, selecting participants who shared common characteristics related to their age and educational level. All participants were 18 years old and in grade 12. Both male and female students were included. A notable characteristic among the participants was that English was a foreign language to them, primarily learned through their English classes and not commonly used in their daily conversations.

Instruments

Two instruments were employed in the study: (i) The Vocabulary Learning Strategies Questionnaire (VLSQ) developed by Schmitt (2000) to examine the specific types of vocabulary learning strategies employed by the participants, and (ii) The Vocabulary Size Test (VST) created by Beglar and Nation (2013) to quantitatively assess their vocabulary size. A concise overview of each instrument is provided below.

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Vocabulary Learning Strategies Questionnaire (VLSQ)

This survey instrument was developed by Schmitt (2000) and designed to be suitable for students from various educational backgrounds and target languages. The present study used it to identify the most and least frequently employed VLSs among EFL learners. It consists of 40 items that encompass five fundamental learning strategies, namely memory, determination, social, cognitive, and metacognitive. Each strategy is briefly described below.

a) Memory strategy (MEM): It refers to the process of storing words in long-term memory through the application of mental images and prior knowledge.
b) Determination strategy (DET): It refers to a strategy by which students use their own tools to determine the new meaning of a word, whether by guessing the meaning from context or by consulting a dictionary.
c) Social strategy (SOC): It refers to a method by which students depend on their surroundings to learning the meaning of new vocabulary, specifically teachers and classmates.
d) Cognitive strategy (COG): It refers to the process of repeating words and saying them aloud. It also includes activities associated with keeping a notebook for new English words and using flashcards to learn new words.
e) Metacognitive strategy (MET): It refers to the act of self-control, and the learning process includes activities related to watching movies, listening to the radio, reading newspapers, and similar other activities.

The questionnaire implemented a five-point scale, wherein participants could indicate their frequency of engagement with each item using the following rating system: 1 = Never, 2 = Seldom, 3 = Sometimes, 4 = Often, and 5 = Always. Therefore, a higher score on the scale may indicate a high strategy usage, whereas a low score would indicate lower levels of strategy usage.

Vocabulary Size Test (VST)

The Vocabulary Size Test (VST), originally designed by Beglar and Nation (2013), serves as an assessment tool to gauge learners' written receptive vocabulary size in the English language. Its primary objective is to estimate whether a learner possesses an adequate vocabulary to proficiently undertake a given task (Beglar & Nation, 2013). The test compares participants' English vocabulary knowledge to that of their peers at the same educational level.

The test has 14-word families, encompassing a range of word frequencies from high-frequency to low-frequency words. According to Beglar and Nation (2013), words falling within the frequency range of 1000 to 2000 are classified as high-frequency, while those between 3000 and 9000 are considered mid-frequency, and words exceeding 10000 are classified as low-frequency. Each word frequency family consists of 10 questions that evaluate participants' comprehension of 10 specific words. Participants are typically required to read each word in the test and select the closest meaning to the keyword provided in the question.

Similar to prior research on the same subject (Alahmadi et al., 2018), the present study will focus solely on two distinct frequency levels: high-frequency words and middle-frequency words. Specifically, the study will place special emphasis on word families that fall within the frequency range of 1000 to 4000. These four-word families will comprise a total of 40 questions. Several factors motivated the primary rationale behind this selection.

Firstly, it was intended to optimize time efficiency, considering that the complete version of the test typically takes an average of 40 minutes to complete. Secondly, existing research on vocabulary size has consistently indicated that Syrian EFL students are less likely to possess extensive vocabulary knowledge, reaching frequencies of 4000 words or above (Daaboul & Nimehchisalem, 2017). Lastly, Nation (2012) suggests that non-native speakers from non-European backgrounds tend to have a vocabulary size ranging from around 3000 to 6000-word families. Considering these justifications collectively, shortening the full test to focus on word families within the 4000-word frequency range is both supported and considered reliable.

Procedures

The study distributed the VLSQ and VST among the participants. Data collection started with instructions on how they should complete the task. It was made clear to the respondents that there are no correct or incorrect answers and trick questions and that all responses will be handled in secrecy and used purely for research purposes. The participants were initially given the vocabulary learning strategies questionnaire in their native language, Arabic. Following, they proceeded to take the vocabulary size test. There was no time constraint for completing the questionnaire and test; Participants took an average of 45 minutes to complete the task, including the VLSQ, VST, and a demographic information section.

Data analysis

For data analysis, we screened the data using IBM SPSS to make sure that our data was free from

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outliers, especially from participants who were uncooperative and used a single-type response throughout the survey. This exploratory procedure was carried out by looking at the standard deviation of the mean score for each participant. If the *z* score was above 2.5, this suggested that their performance fell outside the range within which other participants had their mean score. Our exploratory analyses revealed that participants' z score was between 1 and 2; therefore, we did not remove any participant from the data. We also examined the distribution of our data points and found that data conformed to the assumptions of normality.

FINDINGS

Vocabulary learning strategies among Syrian EFL learners

As previously stated, this study aimed to examine the types of vocabulary learning strategies that Syrian EFL students use to learn new English vocabulary. For this purpose, we used the VLSQ questionnaire that examines five types of learning strategies: social, memory, metacognitive, determination, and cognitive. We examined their frequency by carrying out descriptive analyses that calculate the mean and standard deviation for each learning strategy. A summary of these analyses is presented in Table 1 below and graphically displayed in Figure 1.

Table 1

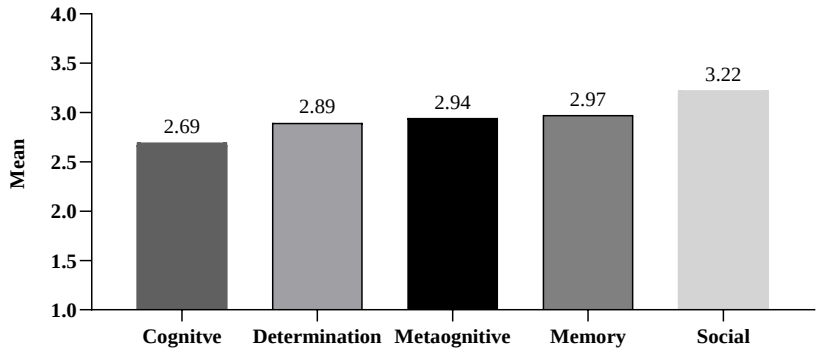
Mean score of vocabulary learning strategies among Syrian secondary school EFL learners

Vocabulary learning strategies	Mean	SD
Social strategies	3.22	.81
Memory strategies	2.97	.78
Metacognitive strategies	2.94	.94
Determination strategies	2.89	.77
Cognitive strategies	2.69	.77

As shown in Table 1, our results revealed that Syrian secondary school EFL learners respectively employ more social learning strategies (*M* = 3.22, *SD* = .81) than memory (*M* = 2.97, *SD* = .78), metacognitive (*M* = 2.94, *SD* = .94), determination (*M* = 2.89, *SD* = .77), and cognitive strategies (*M* = 2.69, *SD* = .77) to acquire new English vocabulary.

Figure 1

Vocabulary learning strategies



However, while these analyses provide an overall view of the most and least dominant strategy among Syrian secondary school EFL learners, they provide limited information on the particular approaches these learners use within these learning strategies. Therefore, in order to further examine and explore these sub-strategies, we carried out an item-based analysis to identify the most and least frequently used strategies within these five categories of learning strategies. The results obtained from these analyses are provided in the following subsections.

Social strategies

Social strategies generally entail engaging in conversations with peers and interacting with instructors to acquire the meaning of unfamiliar words (Oxford, 1990). This study examined participants' social sub-strategies with the aim of identifying the most commonly utilized strategies that Syrian secondary school students employ to learn new English vocabulary. We used descriptive analyses to examine the means score for each item, and our results clearly demonstrate some variability in their usage. Table 2 below presents the frequency of these sub-strategies in a descending manner, with the most frequently used social sub-strategies first and the least frequently ones next.

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Table 2
Frequency of social strategies of Syrian EFL learners

Social strategies	Mean	SD	Level
1. I discuss in English with classmates to know and expand the meaning of a new vocabulary item.	3.56	1.35	Moderate
2. I look for extra English information through the Internet to learn new vocabulary items.	3.40	1.33	Moderate
3. I play English games, such as scrabble, and crossword puzzles to find meaning of a new vocabulary item through group work activity.	3.39	1.39	Moderate
4. I communicate with instructors of English in English to ask for a synonym of a new word or to explain it.	3.39	1.37	Moderate
5. I communicate with foreigners in English through different types of media to develop new vocabulary.	3.20	1.48	Moderate
6. I communicate with instructors of English in English to use a new lexical item in a sentence to increase the knowledge of vocabulary.	3.13	1.45	Moderate
7. I study and practice meaning of new vocabulary items in groups to expand lexical knowledge.	2.88	1.29	Moderate
8. I ask instructors of English for Arabic translation of new lexical items.	2.83	1.66	Moderate

Note: Scores ranging between 1.00 and 2.33 are classified as "low," scores between 2.34 and 3.67 are "medium," and scores between 3.68 and 5.00 are "high."

As indicated in Table 2, the results reveal that students mainly relied on interactions with peers in English (*M* = 3.56, *SD* = 1.35) and utilizing the Internet to expand their vocabulary size (*M* = 3.40, *SD* = 1.33). These two particular subcategories emerged as the most frequently used strategies by the students in their efforts to enhance their vocabulary. These results imply that students heavily rely on their classmates and online lexical resources. Additionally, the students' attempts to practice their English and seek guidance from educators are further highlighted by their communication with instructors and foreigners, which also emerged as noteworthy strategies. These results show that in order to boost their vocabulary, students try to use various sources inside and outside of the classroom, although they did not reach a high level of usage.

Memory strategies

It is common that EFL learners use memory strategies when they apply their existing knowledge and past experiences as a means to recall and retrieve words (Nation, 2013). This study aims to determine how frequently Syrian secondary school students use these eight memory sub-strategies. By investigating these strategies, the study can provide insights into the specific memory strategies used by students in vocabulary learning. To illustrate the findings, Table 3 provides a summary of the results below.

Table 3
Frequency of memory strategies of Syrian secondary school EFL learners

Memory strategies	Mean	SD	Level
1. I use new vocabulary items in sentences repeatedly.	3.31	1.32	Moderate
2. I group new words together to learn new vocabulary.	3.24	1.34	Moderate
3. I connect pictures to the meanings of new words.	3.21	1.35	Moderate
4. I observe the parts of speech of the new vocabulary items.	3.00	1.28	Moderate
5. I categorize new words according to their synonyms and antonyms.	2.83	1.21	Moderate
6. I group new words in relation to similar pronunciation and spelling.	2.82	1.21	Moderate
7. I examine the new words' affixes (prefixes and suffixes).	2.72	1.23	Moderate
8. I use semantic maps to learn new words.	2.65	1.40	Moderate

Table 3 demonstrates the fact that using memory strategies occurs at a moderate level among Syrian secondary school students. According to Schmitt (2000), memory strategies are part of consolidation strategies, which refer to the process of memorizing acquired words in order to grasp their meaning when encountered. In line with our results, students seemed to use these strategies to consolidate the new word meaning via using these new words in sentences (*M* =3.31, *SD* =1.32). Following closely is the strategy of grouping new words together (*M* =3.24, *SD* =1.34). Conversely, the least employed strategy among the students is the examination of new words' suffixes (*M* = 2.72, *SD* = 1.23) and the use of semantic maps (*M* = 2.65, *SD* = 1.40) to aid in vocabulary retention and recall. This observed trend of students' limited utilization of certain subcategories of memory strategies, such as semantic maps, can be attributed to their lack of awareness of these strategies. This lack of awareness may be a result of inadequate instruction provided by educators within the classroom.

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Metacognitive strategies

This term refers to the actively engaging method in regulating the language-learning process. In using these strategies, EFL learners usually take control of their own education rather than relying on regular guidance from their language instructors. Schmitt (2000) places strong emphasis on the requirement that students engage fully in the planning, managing, and self-evaluation of their learning process. This study analyzed the frequency at which these strategies are used in vocabulary learning among Syrian secondary school students. Our findings revealed that these strategies were utilized at different rates, with some being used more frequently than others, as indicated in Table 4 below.

Table 4

Frequency of metacognitive strategies of Syrian secondary school EFL learners

	Metacognitive strategies	Mean	SD	Level
1.	I learn new words by watching English-speaking movies with subtitles.	3.68	1.46	High
2.	I learn new words by relating newly-learned words with previously learned ones.	3.26	1.32	Moderate
3.	I expand the knowledge of lexical items by listening to English songs.	3.26	1.58	Moderate
4.	I study new vocabulary items from advertisements, written signs, written notices, etc.	3.14	1.53	Moderate
5.	I expand the knowledge of lexical items by doing extra curriculum exercises from different sources, such as articles, texts, internet, etc.	2.74	1.44	Moderate
6.	I learn new lexical items by reading articles from several sources as magazines, newspapers, brochures, etc.	2.58	1.48	Moderate
7.	I expand the knowledge of vocabulary items by testing your vocabulary knowledge with word lists.	2.50	1.32	Moderate
8.	I learn new words by listening to English radio programmes.	2.43	1.48	Moderate

The analysis presented in Table 4 reveals remarkable patterns in how students use different metacognitive techniques. Specifically, it demonstrates a high frequency of using English films with subtitles as a technique to learn new words (M = 3.68, SD = 1.46). Additionally, moderate usage of listening to English music (M = 3.26, SD = 1.58) and associating newly learned words with previously acquired vocabulary (M= 3.26, SD = 1.32) are recognized. As suggested by Antia et al. (2021), these results are intriguing in that they show that students exhibit a sense of self-reliance and actively seek learning opportunities outside of the classroom without much dependence on their instructors, which has a positive impact on their learning process.

Determination strategies

In these strategies, students usually use their own tools to determine the meaning of unfamiliar terms, whether by guessing the meaning from context or by checking dictionaries (Schmitt, 2000). Table 5 below summarizes the frequency with which Syrian secondary school students apply these strategies in their quest to discover the meaning of new words.

Table 5

Frequency of determination strategies of Syrian secondary school EFL learners

	Determination strategies	Mean	SD	Level
1.	I guess the meaning from context to discover the meaning of new words.	3.51	1.26	Moderate
2.	I guess the meaning from word classes, such as noun, verb, adjective, adverb, to discover the meaning of new words.	3.02	1.32	Moderate
3.	I use an English–English dictionary to find the meaning of new words.	3.00	1.47	Moderate
4.	I guess the meaning from grammatical structure of a sentence to discover the meaning of new words.	2.83	1.28	Moderate
5.	I guess the meaning from aural features, such as stress, intonation, pronunciation, to discover the meaning of new words.	2.74	1.25	Moderate
6.	I use an English–Arabic dictionary to discover the meaning of new words.	2.70	1.48	Moderate
7.	I use an Arabic–English dictionary to discover the meaning of new words.	2.68	1.50	Moderate
8.	I guess the meaning by analysing the structure of words (prefixes, roots, and suffixes) to discover the meaning of new words.	2.66	1.28	Moderate

As seen in Table 5, the moderate usage of determination strategies among Syrian secondary students reveals some interesting patterns. The two highest-scoring strategies are "guessing the meaning from context" (M = 3.51, SD = 1.26) and "guessing from word classes" (M = 3.02, SD = 1.32). Notably, students tend to rely on guessing the meaning of unfamiliar terms based on contextual clues before

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resorting to dictionary usage. Moreover, they demonstrate a preference for using English-English dictionaries (*M* = 3.00, *SD* = 1.47) to enhance their understanding of word meanings, surpassing the usage of bilingual dictionaries such as English-Arabic (*M* = 2.70, *SD* = 1.48) and Arabic-English (*M*= 2.68, *SD* = 1.50). This suggests that students perceive monolingual dictionaries as highly valuable, but they turn to bilingual dictionaries only when they encounter difficulties in grasping the meaning through other means.

Cognitive strategies

Schmitt (2000) suggests that these strategies include saying lexical items aloud, engaging in verbal and written repetition of words, and taking notes in class. These activities are aimed at enhancing learners' understanding and retention of vocabulary items. This study analyzed the cognitive strategies that are most and least frequently employed by Syrian secondary students. Table 6 provides a summary of our results.

Table 6

Frequency of cognitive strategies of Syrian EFL learners

Cognitive strategies	Mean	SD	Level
1. I repeat orally a single word with its meanings to learn it.	3.06	1.29	Moderate
2. I associate new vocabulary items with physical objects to learn the lexical items.	2.97	1.33	Moderate
3. I revise previous English lessons and take notes in class to learn the new vocabulary items.	2.90	1.27	Moderate
4. I keep a notebook for a vocabulary list with meanings and examples to learn the new vocabulary items.	2.72	1.43	Moderate
5. I listen to vocabulary CDs to learn new vocabulary items.	2.71	1.50	Moderate
6. I practice orally new words with their lexical sets.	2.63	1.13	Moderate
7. I use a new lexical item by writing it repeatedly in sentences.	2.60	1.30	Moderate
8. I write new lexical items with meanings on flash cards to learn them.	1.93	1.23	Low

The results presented in Table 6 demonstrate that the usage of cognitive sub-strategies among Syrian secondary students ranges from moderate to low, with no category exhibiting significant usage. The most often employed technique is "repeating orally with meaning" (*M* = 3.06, *SD* = 1.29), followed by "associating new vocabulary with physical objects" (*M* = 2.97, *SD* = 1.33). Furthermore, the strategy of "taking notes in class" ranks third in terms of usage (*M* = 2.90, *SD* = 1.27). These findings indicate that students perceive these strategies as effective for enhancing their ability to recall and remember the meaning of vocabulary items. On the other hand, the students' use of flashcards is relatively low (*M* =1.93, *SD* =1. 23). This suggests that flashcards, which are often favoured by younger learners at lower English levels, are not commonly preferred by the secondary school students in this study.

Level of vocabulary size of Syrian secondary school EFL learners

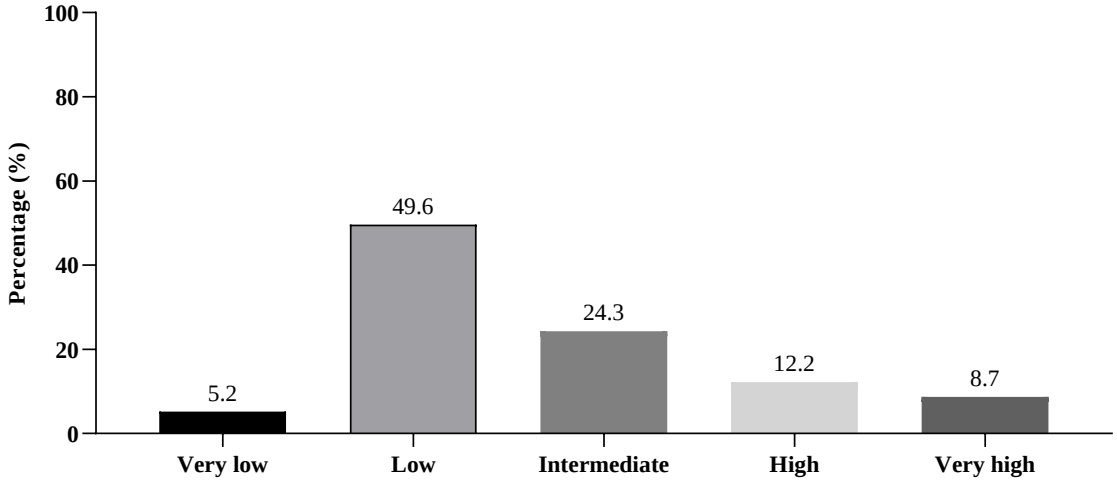
The second objective of our study was to examine participants' vocabulary size. Vocabulary size refers to the number of words that an individual has in their lexicon and can effectively comprehend and use in their language. Vocabulary size is typically measured by conducting assessments or tests that gauge the approximate number of words an individual has in their repertoire. This study used the vocabulary size test of Beglar and Nation (2013) to obtain an estimate of Syrian secondary school students' vocabulary size. The test had 40 questions; therefore, the minimum achievement score is 0, and the maximum score is 40. We carried out our exploratory analyses, and the results revealed that participants, on average, scored 18.3 out of 40 (M = 18.32, SD = 7.77). The minimum score was 5, and the maximum score was 39.

In order to delve deeper into the performance of each participant on the vocabulary test, the achievement scores were categorized into five distinct groups: 1-8 were classified as "Very low" scores, 8.1-16 as "Low," 16-24 as "Intermediate," 24.1-32 as "High," and 32.1-40 as "Very high." The distribution of participants across these five categories is depicted in Figure 2, illustrating the percentage of participants in each respective category.

Interestingly, our results revealed that a significant portion of the participants (49.6%) exhibit a "low" vocabulary size, while an additional 24% fall into the "intermediate" category. Conversely, only a small percentage of participants demonstrate a "high" (12.2%) or "very high" (8.7%) level of vocabulary size in our 1000-4000 vocabulary size test. These results provide compelling evidence that a majority of Syrian secondary school students in our study possess limited lexical knowledge. Perhaps this outcome is to be expected, given that English is considered a foreign language in Syria and not commonly used in daily communications.

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Figure 2
Levels of vocabulary size of Syrian secondary school EFL learners



Relationship between vocabulary learning strategies and vocabulary size

The third objective of our study was to assess the relationship between participants' VLSs and vocabulary size. The aim of this relationship test was to examine which type of learning strategy contributes more to our participants' vocabulary size. To achieve this objective, we carried out regression analyses in which the metacognitive strategy, cognitive strategy, social strategy, memory strategy, and determination strategy served as the independent variables in the model, whereas participants' scores on the vocabulary size test served as the dependent variable. The variables were entered in a single model using the forced entry method and bootstrap robust procedure. A summary of the results is presented in Table 7 below.

Table 7
Regression analysis between vocabulary learning strategies and vocabulary size

Predictor	*B*	*SE*	*β*	*Sig.*
(Constant)	3.689	3.030		.227
Social strategy	3.254	1.075	.341	.002
Cognitive strategy	-2.958	.933	-.294	.003
Metacognitive strategy	2.486	.893	.300	.007
Determination strategy	1.649	.944	.164	.077
Memory strategy	.009	.965	.001	.996

R^2 = .34; F-test = 11.328 (p < .001)

As shown in Table 7, our model was significant (F (5, 114) = 11.328, p < .001) and the participants' usage of these five VLSs can account for 34% of the variation in vocabulary size. Notably, the results show that both the social strategy (t(114) = 3.39, p < .01) and metacognitive strategy (t(114) = 2.77, p < .01) are in a significant and positive relationship with participants' vocabulary size, whereas the cognitive strategy (t(114) = -2.94, p < .01) is in a significant and negative relationship with vocabulary size. The other strategies; namely, the determination strategy and memory strategy do not show any significant relationship with vocabulary size (all p's > .05).

These relationship results provide useful insights into the specific learning strategies that contributed to our participants' lexical knowledge. They specifically suggest that high-strategy users are more likely to have greater vocabulary size, whereas those with a lower tendency to use vocabulary learning strategies have a diminished vocabulary size. These results also align with our findings in strategy frequency analyses above. In other words, the social strategy significantly and positively impacted participants' vocabulary size because it was the most frequently used strategy among our participants, whereas the cognitive strategy significantly and negatively impacted their vocabulary knowledge because it was the least frequently used strategy in their vocabulary learning. This suggests that high strategy use, in general, has positive and significant benefits for vocabulary acquisition and teachers therefore should inform students of the various learning approaches they may use to maximize their lexical resources.

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DISCUSSION

This study, which involved students from Syrian secondary schools, assessed students' vocabulary size and examined the frequency with which they used vocabulary learning strategies to learn new English words. We used Beglar and Nation's (2013) vocabulary size test to obtain an estimated measure of their vocabulary size, and the VLSs questionnaire developed by Schmitt (2000), which covers the memory, cognitive, metacognitive, social, and determination strategies, to identify the most frequently used strategies to acquire new words.

Our findings revealed that Syrian secondary school students predominantly use social strategies for vocabulary learning. This preference suggests that these students favor collaborative learning activities and frequently seek guidance from their teachers, rather than relying solely on individual learning strategies (Gorgoz & Tican, 2020; Ramzan et al., 2023). This observation aligns with the study conducted by Daaboulis et al. (2018), which also found a similar trend among undergraduate Syrian students. One explanation for this observation is that the educational environment in Syria, which emphasizes cultural values that support collaborative learning and teacher guidance. This instructional context likely encourages students to depend on their instructors for assistance and fosters a supportive and cooperative learning environment (Ismail & Al Allaq, 2019). These findings support Schmitt's (1993) assertion that "some cultures favor certain strategies, perhaps because those strategies are emphasized in the culture's school systems" (p. 32).

Previous studies have also shown that the use of vocabulary learning strategies can vary significantly across different cultures and student populations (Alahmad, 2020; SettarAbid, 2017). For example, Alahmad (2020) investigated VLS usage among Saudi undergraduate students and found distinct patterns compared to other cultural contexts. Saudi students were less inclined to use social and memory strategies, instead favoring metacognitive and cognitive techniques such as self-evaluation and note-taking. This preference for independent learning methods reflects the educational and cultural system in Saudi Arabia, which promotes self-directed learning and the development of autonomous learning skills.

Similarly, SettarAbid (2017) conducted a study examining the VLSs commonly utilized by Iraqi undergraduate students majoring in English at the University of Basra in Iraq. The results of the study indicated that the students' least employed strategy was the social strategy. This observation resonates with our own study's findings and aligns with Gu's (2003) assertion that strategies effective for learners in one context may not be suitable for others. Gu's study underlines the imperative role of contextual factors that shape learners' preferences and efficacy of vocabulary learning strategies and highlights the significance of considering cultural and educational contexts when examining and implementing effective vocabulary learning strategies. According to Mokal and Abd Halim (2023), even the usage of certain lexical items is influenced by the social and cultural environment.

Another possible explanation for the dominant utilization of social learning strategies among Syrian secondary school EFL students could be due to their inadequate proficiency in English. Communicating and socializing with peers and teachers can provide opportunities for them to seek clarification and ask questions about word definitions, helping them overcome language obstacles and enhance their understanding (Jamali Kivi et al., 2021). According to Alahmadi and Foltz (2020), those who have high vocabulary size are inclined to use inferencing and bilingual dictionaries as opposed to the social strategies that are more frequently used by those with lower vocabulary sizes.

Our results also revealed that Syrian secondary school EFL learners have, on average, a "low" vocabulary size, with the majority of students showing proficiency in the 2000-3000 high-frequency words. According to Beglar and Nation (2013), high-frequency words reflect of those listing between 1000 and 2000 words, while mid-frequency words are indicate those with a frequency between 3,000 and 9,000 words. Those of frequency 10,000 and above are considered low-frequency words. According to recent research conducted by Milton and Treffers-Daller (2013), it has been suggested that EFL learners require a certain vocabulary size to effectively engage in different language tasks. These findings highlight the importance of vocabulary acquisition and the incremental nature of vocabulary growth for EFL learners as they progress from basic conversation skills, which need nearly 2000 to 3000 words, to more advanced language tasks such as reading authentic texts of about 5000 words and pursuing academic studies with 10,000 words. Recognizing that Syrian students have varying levels of vocabulary size, teachers should adopt differentiated instructional approaches. Tailoring lessons to meet diverse learner needs by providing additional support for students with limited vocabulary and more advanced materials for those with larger vocabulary size can be effective.

Our findings revealed that a significant proportion of the participants possess a low vocabulary size, with approximately 49.6% of them falling into this category. This indicates that these students have a limited resource of words, which may impede their ability to engage in more advanced language activities such as reading authentic texts or pursuing academic studies in English. Consequently, while these participants may possess the necessary vocabulary to engage in basic interactions, they are likely to encounter difficulties

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when it comes to comprehending and analyzing more complex written materials. Furthermore, their prospects of pursuing higher education in an English-speaking environment could be hindered due to insufficient vocabulary knowledge. These results align with prior research suggesting that students, particularly EFL learners, often exhibit inadequate vocabulary size (Altalhab, 2019; Daaboul & Nimehchisalem, 2017; SettarAbid, 2017). This deficiency may be attributed to factors such as English not being their primary language and limited exposure to the language in their educational settings and daily lives. Understanding these contextual factors is essential for designing targeted interventions and instructional approaches that address the specific vocabulary needs of EFL learners and promote their language development.

Another intriguing result from our study is the significant relationship between VLSs and vocabulary size. The literature consistently supports the view there is a positive association between vocabulary size and the utilization of VLSs among individuals (Al-Shujairi et al., 2019; Alahmad, 2020; Fan, 2020). This study assessed the relationship between VLSs and vocabulary size using regression analyses. The results corroborated prior research, indicating a statistically significant relationship between the implementation of VLSs and the expansion of vocabulary size (Fan, 2020; Khan & Ariffin, 2023). The analyses further suggested that students derive substantial benefits in terms of expanding their vocabulary and enhancing their English proficiency through their elevated utilization of social strategies. The significant relationship between the use of VLSs and vocabulary size suggests that teaching students effective vocabulary learning strategies may enhance their vocabulary knowledge. These findings suggest that teachers should prioritize explicit vocabulary instruction and integrate effective vocabulary learning strategies into their teaching. Emphasizing high-frequency and academic words, incorporating extensive reading programs, and using digital tools can help students expand their vocabulary. Additionally, our data analysis indicated that the least used strategies are cognitive strategies, which have a detrimental effect on the level of vocabulary knowledge among Syrian students, resulting in inferior levels of English vocabulary in our relationship analyses. These findings are consistent with earlier research by Shi (2017), Oxford (1990), and Rubin (1975) which revealed that the negative relationship between VLSs and vocabulary size is a result of limited use of learning strategies. Therefore, the limited use of cognitive strategies among our students may be ascribed to a lack of awareness or neglect of the importance of a wide variety of VLSs in vocabulary learning (Yaacob et al., 2019).

This unfamiliarity with cognitive strategies may stem from teachers' inadequate knowledge and understanding of the vital role that VLSs play in building a rich resource of lexical items, which in turn may help EFL learners enhance their language skills and overcome challenges they encounter. This underscores the significance of providing appropriate and effective training to instructors, equipping them with the knowledge and tools to guide and instruct students in a way that emphasizes the application of various VLSs, including all the strategies, rather than solely focusing on lexical grouping techniques and the habit of noting down new words (Mardali & Siyyari, 2019; Zhang, 2021). These strategies can have a noticeable impact on language proficiency and the overall language composition of learners. Therefore, by raising awareness among teachers about the importance of VLSs and providing them with the necessary training, educational institutions can better support students in their language learning journey. Teachers who possess a deeper understanding of VLSs can guide students effectively, fostering the development of a broader vocabulary and improving students' language proficiency levels more generally.

One notable limitation of our study may lie in its relatively small sample size, potentially compromising the statistical power of analyses and the extent to which findings can be extrapolated to broader populations of EFL learners. Expanding the sample size and diversifying participant demographics could lead to more robust and generalizable findings, thus enhancing the validity of conclusions regarding the relationships between variables. Moreover, increasing the sample size would facilitate subgroup analyses, allowing for a nuanced exploration of potential variations in vocabulary size and learning strategies across demographic categories such as proficiency levels, age groups, and educational backgrounds.

Furthermore, the study's restriction to a specific cultural and educational context, namely Syrian secondary schools in Damascus, poses another limitation. The findings may be influenced by contextual nuances intrinsic to the Syrian educational system, including curriculum frameworks, pedagogical approaches, and sociocultural norms, thereby limiting their generalization to other contexts or populations. To address this limitation, future research could undertake cross-cultural or cross-national investigations to examine how contextual factors impact vocabulary size and vocabulary learning strategies across diverse linguistic and cultural settings.

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CONCLUSION

The study aimed to identify the most commonly employed vocabulary learning strategies among Syrian EFL learners, assess their vocabulary size, and examine the relationship between these strategies and vocabulary size. The key finding of the study was that the participants were classified as moderate VLS users. This suggests that Syrian secondary school EFL learners use vocabulary learning strategies to some extent but not extensively. It implies that there is potential room for development in terms of the participant's ability to use VLSs efficiently. The responses to the vocabulary size test also indicated that the participants had little knowledge of English vocabulary. However, our relationship analyses revealed that vocabulary learning strategies can contribute to our participants' lexical knowledge. High-strategy users were more likely to have greater vocabulary size, whereas those with a lower tendency to use vocabulary learning strategies had a diminished vocabulary size. In light of these findings, additional support from teachers and classmates could prove advantageous. Encouraging students to actively engage and discuss various topics, as suggested by Zhou and Abd Halim (2022), may lead to improved vocabulary learning techniques and vocabulary knowledge. Additionally, integrating digital tools and resources, such as language learning apps, online dictionaries, and interactive language games, can provide learners with engaging and accessible opportunities to expand their vocabulary and encounter vocabulary in authentic contexts (Al-Jarf, 2022; Tai et al., 2022; Vnucko & Klimova, 2023). Therefore, embracing digital resources alongside traditional teaching methods may offer diverse and dynamic avenues for vocabulary acquisition in today's language learning landscape.

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