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Article

Vocabulary Learning Strategies and Vocabulary Size: A Correlational Study of Iraqi Undergraduate Students

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A B S T R A C T

Understanding the relationship between English vocabulary learning strategies (VLSs) and vocabulary size (VS) represents a controversial issue among previous studies in the field of applied linguistics. Hence, the current study attempted to identify the (VLSs) and (VS) among Iraqi EFL university students. Besides, it examined the relationship between (VLSs) and (VS) among Iraqi EFL university students. A quantitative correlational research design was employed supported by the (VLSs) questionnaire, and (VS) test. The sample of study is represented by 258 EFL university students in their fourth year who were selected conveniently from the Dept. of English, College of Education for Humanities and College of Education for Women- University of Anbar throughout the first semester of the academic year 2025-2026. Data was analyzed quantitatively using SPSS to calculate means, standard deviations, t-test, Pearson's Correlation, and multiple regression analysis. Findings indicated that Iraqi undergraduate students actively use various VLSs, particularly metacognitive, memory, and cognitive strategies, to mitigate their vocabulary knowledge. In addition, the findings revealed that there is a statistically positive and significant relationship between the effective use of the majority of VLSs and students' VS, which in turn contributes to their overall language proficiency. The study concludes that mastering VLSs is essential for EFL students, particularly in the Iraqi context, were limited exposure to English poses challenges to vocabulary development. By adopting effective strategies, students do not only enlarge their VS but also enhance their communicative competence, academic performance, and lifelong learning skills.

Keywords: *Vocabulary Learning, Vocabulary Learning Strategies, Vocabulary Size, Correlational Study, Iraqi Undergraduate Students.*

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INTRODUCTION

Vocabulary as an essential language element represents a key element in English language learning, especially for students of English as a Foreign Language (EFL). Learning English vocabulary is essential for developing the main four language skills; listening, speaking, reading, and writing skills (Ueno, & Takeuchi, 2025). When students have a wide range of vocabulary, they will be able to understand spoken English utterances sufficiently, express themselves clearly, read with greater comprehension, and write more accurately. When EFL students are having an accumulative English vocabulary knowledge, this is scientifically known as "vocabulary size". The term vocabulary size refers to the total number of words a learner knows and can use properly (Al Nan, & Abd Halim, 2024).

Moreover, having a large vocabulary store by EFL students affords them many advantages, such as better understanding, improved communication, and higher academic success. In contrast, having a limited vocabulary store can lead to difficulties in understanding, limited expression, and lower performance in language skills and tasks. In addition, insufficient vocabulary knowledge is clearly reflected in the students' misuse of some of the English vocabulary items to convey specific language functions or in a case of failing to convey these functions due to their lack of vocabulary item (Zhang, (2021).

Many EFL students, including those in Iraqi universities, encounter challenges in the use of English language in both its oral and written forms due to their limited vocabulary knowledge or mistakes resulted from inappropriate use of some English vocabularies. These problems often result from limited exposure to English, lack of practice, or ineffective learning methods. As a result, students struggle with learning and communication. Therefore, expanding vocabulary knowledge is a crucial need for those students (Alqahtani, 2015).

A useful way to develop and enrich EFL students' vocabulary knowledge and enlarge their vocabulary size is by using vocabulary learning strategies (VLSs). These are planned techniques that help students learn, remember, and use new words effectively (Zahro, & Wardah, 2023). Examples of these strategies include using dictionaries, guessing meanings from context, making word lists, using flashcards, and practicing new words in sentences. These strategies do not only help students learn vocabulary but also increase their motivation and independence in learning. When learners apply these strategies effectively, they can grow their mental vocabulary store, remember words for long term memory, and use them correctly in various situations. Thus, vocabulary learning strategies are essential for improving vocabulary size and overall language ability (Khatimah, 2022).

In the last twenty years, several studies have investigated the impact of vocabulary learning strategies (VLSs) on the acquisition and retention of new words by EFL students. Globally, previous studies such as Punnarungsee (2023), and Maghsoudi & Golshan, (2017) examined the students' most frequently used vocabulary learning strategies and their relationship with students' vocabulary size at different global countries. Their results were contradictory as Punnarungsee's (2023) study revealed that the cognitive strategies were the preferable ones while the metacognitive strategies were the least used one. Besides, memory learning strategies had a positive correlation with the vocabulary size while other learning strategies did not have significant correlation. As for Maghsoudi & Golshan, (2017), results revealed that the metacognitive learning strategy was the most preferable one and the social strategy was least used one. Moreover, there is no statistically significant correlation between vocabulary size and vocabulary learning strategies. Moreover, Catalán (2003) investigated how Spanish learners' usage of vocabulary learning strategies varied by gender and discovered a correlation between vocabulary growth and strategy choice. Similarly, other scholars have examined the efficacy of employing particular language acquisition techniques. For example, Mizumoto and Takeuchi (2009) shown that self-regulation techniques gradually enhanced vocabulary retention over time.

Locally, scholars such as Alsharif (2022), and Alhaisoni (2012) have empirically examined students' preference of VLSs and their impact on EFL-ESL students' vocabulary knowledge and size in Saudia Arabia. Alsharif's (2022) study, revealed that the metacognitive learning type was the most often employed one, and this improved their vocabulary size. As for Alhaisoni's (2012) study, results indicated that several students frequently used translation, bilingual dictionaries, and rote memory, with little impact on students' vocabulary size.

In the context of Iraq, a study conducted by Mahmood & Arslan (2017) studied the connection between vocabulary size and the vocabulary learning practices of Iraqi EFL learners at Sulaymaniyah University. Findings revealed that consolidation strategy was the most frequently used one, and there were occasionally insignificant connections between vocabulary size and students' vocabulary learning practices. Similarly, Faraj & Kiliç (2018) sought to investigate the most frequently used vocabulary learning strategies among Iraqi EFL students enrolled in undergraduate programs. Their study revealed that the most commonly employed one was metacognitive strategy, and there was a statistically significant correlation between vocabulary learning strategies and vocabulary size.

Though these studies provided significant evidence related to how vocabulary learning strategies are used and how they impacted students' vocabulary size, they evidently reflected contradicting and argumentative conclusions, as the relation between VLSs and vocabulary size varied between previous research. Accordingly, the current study seeks to close the gap in the literature caused by this lack of clear knowledge. Hence, the current study aims at identifying the vocabulary learning strategies commonly used by Iraqi EFL undergraduate

students and their vocabulary size and identify the type of relationship between vocabulary learning strategies and vocabulary size.

The present study aims to: 1. Identify vocabulary learning strategies among Iraqi EFL undergraduate students. 2. Assess vocabulary size among Iraqi EFL undergraduate students. 3. Investigate the relationship between vocabulary learning strategies and vocabulary size among Iraqi EFL undergraduate students. In addition, the present study addresses the following research questions: 1. What are the mostly used vocabulary learning strategies by Iraqi EFL undergraduate students? 2. What is the average vocabulary size of Iraqi EFL undergraduate students? 3. Is there a significant relationship between Iraqi EFL undergraduates' vocabulary learning strategy use and their vocabulary size?

Taxonomies of vocabulary learning strategies (VLSs)

The classification of Vocabulary Learning Strategies (VLSs) is a deep-rooted area of study, which evoked an interest of several key scholars. The following outlines the major vocabulary learning strategies taxonomies, with a detailed focus on Schmitt's (2000) model due to its relevance to the current study.

Schmitt's Taxonomy (2000)

This taxonomy represents the most frequently cited framework and it offers a comprehensive framework for understanding how learners initially discover and subsequently master new vocabulary. It is widely regarded as one of the most extensive models and is frequently cited as a standard reference. This taxonomy categorizes VLSs based on the learning process as it includes two primary types; Discovery (the initial encounter with a word) and Consolidation (memorizing the to be ready for recalling later on). These two primary types include five secondary categories:

Discovery Strategies: Techniques employed by the learners to figure out the meaning of a new word upon first encounter. This category includes: Determination Strategies (DET): Learners independently deduce meaning without consulting another person (e.g., inferring the meaning of a specific word from context, analyzing word parts, or using a dictionary). Social Strategies (SOC): Learners discover a new word's meaning through interaction with others (e.g., asking the teacher or classmates for an explanation).

Consolidation Strategies: Techniques used to master and retain a word after its initial introduction. This category includes three sub-groups: Memory Strategies (MEM) (traditionally known as Mnemonics): Techniques used by the learners to build mental linkages to aid recalling. This involves connecting a new word to familiar knowledge through imagery, sound, or personal experience (e.g., the keyword method or semantic mapping). Cognitive Strategies (COG): These strategies are used by English language learners to understand the meaning of a new word by linking it to other already familiar word or, by examining the form of the new word to elicit its meaning. These strategies represent more mechanical practices that involve repetition and tangible manipulation of language without deep mental processing (e.g., using word lists, flashcards, or verbal/written repetition, and note- taking). Metacognitive Strategies (MET): These strategies are higher-order strategies that involve conscious reflections on the learning process for the purpose of learning and retention of new vocabulary items. This includes planning activities, monitoring progress, and evaluating learning effectiveness (e.g., scheduling reviews with spaced repetition or self-testing). See Figure 1, for the main groups and sub-groups of VLSs outlined by Schmitt (2000).

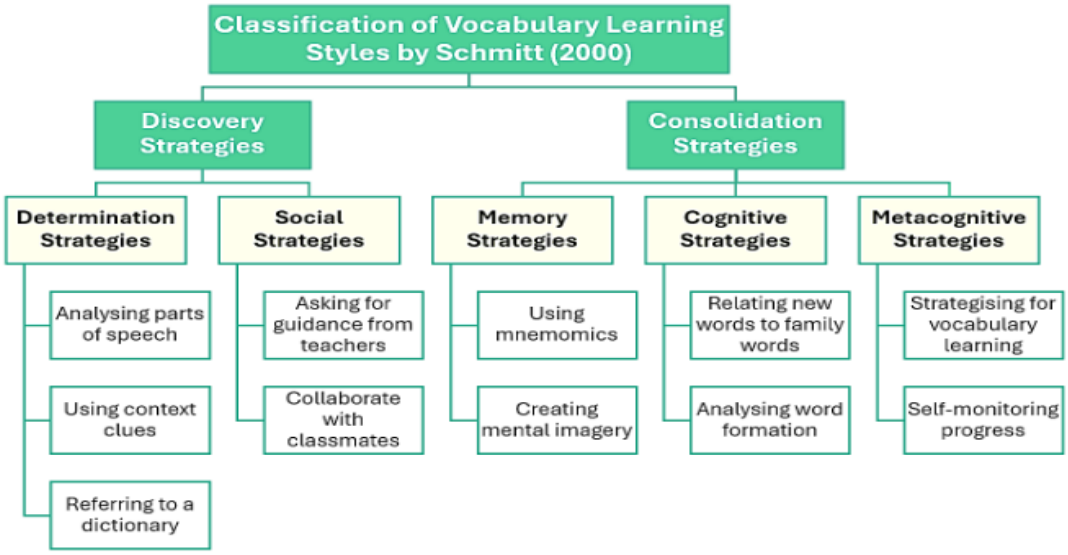

Figure 1: VLSs as Highlighted by Schmitt, (2000).

Nation's Taxonomy (2001)

Nation's taxonomy (2001) emphasizes Depth of Knowledge by focusing on what learners need to know about a word to fully understand and use it, moving beyond simple lists of strategies to a comprehensive framework of vocabulary mastery. It is organized into three core components: planning, which involves selecting target words and setting goals, timing, and learning sequences; sources, which refer to where information is obtained, such as context, dictionaries, morphological analysis, or interaction with others; and processes, which include cognitive activities like noticing, retrieving, and using words in communication. To support these components, learners apply specific strategies such as repetition, visual highlighting, and word analysis to learn form; imagery, the keyword method, and semantic mapping to learn meaning; and studying collocations in context as well as using language corpora to learn use.

Gu & Johnson's Taxonomy (1996)

A Metacognitively-Oriented Model is developed by Gu and Johnson which centers around the relationships between strategic use and learning outcomes. It places a significant focus on the metacognitive side of vocabulary learning process. This taxonomy consists of the following aspects: (1) Metacognitive Regulation: This includes higher-order strategies such as guessing meaning from context, skillful dictionary use, note-taking, analyzing word parts, and consciously activating new learnt vocabulary. (2) Cognitive Strategies: These are more mechanical techniques involving rote memorization through repetition, rehearsal by using word lists, and encoding through associations, imagery, and contextualization. (3) Memory Strategies: Classified here as a subset of cognitive strategies, these are specifically aimed at retention (e.g., the keyword method, semantic mapping). (4) Activation Strategies: This involves the deliberate effort to integrate newly learned words into one's active vocabulary through speaking and writing.

Oxford's Integration (1990)

This taxonomy is a general language learning strategies model and not precisely related to vocabulary learning. However, it is often used for vocabulary learning and it categorizes all strategies into two primary types, each with three sub-types:

Direct Strategies: These involve direct engagement with the target language. Memory: Establishing mental connections through associating/elaborating, grouping, and contextualizing words. Cognitive: Practicing (e.g., repetition, structured exercises for formal practice), receiving and sending messages (e.g., using dictionaries), and analyzing and

reasoning (e.g., guessing meaning, analyzing expressions). Compensation: Filling knowledge gaps, for instance, by guessing from context or using synonyms and gestures.

Indirect Strategies: These support and manage learning without direct language manipulation. These include: (1) Metacognitive: Centering one's learning opportunities by overviewing, paying attention/ arranging and planning by directing goals, and identifying learning resources/ evaluating one's learning by and self-monitoring. (2) Affective: Handling one's emotions and motivation, for example, by reducing anxiety by listening to music. (3) Social: Learning through interaction with others, such as by asking questions and cooperating with peers. Here is a brief illustration of the key components and contribution of each taxonomy as shown in Table 1 below.

Table 1 A Summary of Key Components and Contribution of VLSs Taxonomies.

Researcher (Year)	Key Contribution	Main Categories
Schmitt (2000)	The standard, detailed VLS taxonomy	**Discovery**: Determination, Social **Consolidation:** Social, Memory, Cognitive, Metacognitive
Nation (2001)	Defines the depth of knowledge required	**Form, Meaning, Use** (Strategies are tools to achieve this knowledge)
Gu & Johnson (1996)	Questionnaire-based; links strategies to outcomes	Metacognitive Regulation, Cognitive Strategies, Memory, Activation
Oxford (1990)	A general language learning strategy model applied to vocabulary	**Direct:** Memory, Cognitive, Compensation. **Indirect:** Metacognitive, Affective, Social

Within the academic writing field, the taxonomies proposed by Schmitt (2000) and Nation (2001) are the most predominantly cited, as they offer particularly detailed and applicable frameworks for analyzing vocabulary learning strategies (VLS). Notwithstanding the variety of existing classifications, the present study employed Schmitt's (2000) taxonomy. This framework is adopted to systematically investigate the way EFL undergraduate university students in vocabulary learning.

Previous Research on the relationships between VLSs and Vocabulary Size

Over the past two decades, many researchers have examined the role of vocabulary learning strategies (VLSs) in helping EFL students acquire and retain new words. For instance, Punnarungsee (2023) used mixed mode study to investigate the use of vocabulary learning strategies by undergraduate English major students of different frequency word levels at Maejo University and its relationship with vocabulary size. The results indicated that the cognitive strategies were the preferable ones while the metacognitive strategies were the least used one. Besides, memory learning strategies had a positive correlation with the vocabulary size while other learning strategies did not have significant correlation. Contrarily, Maghsoudi & Golshan, (2017) investigated the use of vocabulary learning strategy among university Iranian EFL learners and revealed different results as the metacognitive learning strategy was the most preferable one and the social strategy was least used one. Moreover, there is no statistically significant correlation between vocabulary size and vocabulary learning strategies with an exception represented by a small reverse correlation between the compensation learning strategy and vocabulary size.

Empirically, several studies have been conducted to investigate the effective use of VLSs on EFL-ESL students' vocabulary knowledge and size. For example, Alsharif (2022) attempted to identify the most frequently used type of vocabulary learning strategies among female Saudi students and their effective role in vocabulary knowledge. Results indicated that the metacognitive learning strategy was the frequently used one and that the much use of the metacognitive strategy the more enhancement in vocabulary knowledge occurred by the participants of the study. Similarly, Catalán (2003) explored gender differences in VLSs use among Spanish learners and found that strategy choice was linked to vocabulary

development. In the same vein, other researchers have focused on the effectiveness of using specific vocabulary learning strategies. For example, Mizumoto and Takeuchi (2009) showed that self-regulation strategies significantly improved vocabulary retention over time. Furthermore, recent studies such as Alhaisoni (2012) in Saudi Arabia examined learners' preferences for various VLSs and revealed that many learners relied on bilingual dictionaries, translation, and rote memorization, often with limited success.

In Iraq, Mahmood & Arslan (2017) investigated the relationship between Iraqi EFL learners' vocabulary learning strategies and vocabulary size at Sulaymaniyah University. The study revealed that consolidation strategy was the most frequently used strategy and the correlation was positive, negative and sometimes no relationships between learners' vocabulary learning strategies and vocabulary size. Similarly, Faraj & Kiliç (2018) used mixed mode research design to identify the most frequently used vocabulary learning strategies among undergraduate Iraqi EFL learners and revealed that metacognitive strategy was the frequently used one and the correlation between vocabulary learning strategies and Vocabulary Size was statistically significant,

Although these studies provide valuable insights into the use and effects of vocabulary learning strategies on students' vocabulary size, they obviously presented controversial results and the relationship between VLSs and vocabulary size was not consistent among the previous studies. This represents a lack of clear understanding and consequently creates a gap in the literature, which the present study aims to fill by investigating how Iraqi EFL learners use vocabulary strategies and how these strategies relate to their vocabulary size.

METHOD

Research Design

A quantitative research paradigm was implemented in the current study for the purpose of data collection and analysis. To collect data relevant to the current study, (VLSs) questionnaire and (VST) were used. Highlighting the importance of quantitative research method, Bhattacherjee (2021: 102), stated that "quantitative approaches are often preferred by researchers as they enable them to achieve the aims of their studies through objective instruments, while the data can be processed using proper statistical techniques". As the target of the current study is to find the correlation between EFL students' (VLSs) and (VS), a correlational research type was used to decide the extent and level of association between the outcomes of the two variables mentioned above.

Alongside this, the study also employed a descriptive research design, which, as Creswell & Guetterman (2021) explain, involves examining existing data or applying non-experimental approaches to address research aims. In line with this, the current study utilized instruments typical of descriptive research (a questionnaire and a test). Descriptive statistics were used to identify the range and frequency of VLSs employed by the 4th year Iraqi EFL undergraduate learners and to interpret the results of the VST. Finally, the collected data were analyzed using quantitative statistical procedures through the Statistical Package for the Social Sciences (SPSS).

Respondents

The data collection process of the current study was conducted in the first semester of the academic year 2025-2026. The population of the study includes fourth year EFL senior students at the university of Anbar-College of Education for Humanities and College of Education for Women whereby there were (110) male and female students at the first college and (148) female students at the second college totaling (258) students for both colleges.

As those students were easily reachable to the researchers, the convenience sampling type was employed. Accordingly, those students were asked to respond to the two instruments of the study voluntarily resulting in (258) responses for both colleges (110) from the College of Education for Humanities and (148) from the College of Education for Women. Those students represented the sample of the current study.

Those students were attending their classes as the final year of academic study to be teachers of English language after graduation. Based on the educational system in Iraq, they all study basic English language skills starting from their fifth primary schools till they complete their secondary schools. After being admitted in their colleges at the Department of English, they all study specialized courses in English language including literature, linguistics, applied linguistics, methods of teaching English language, grammar courses along with the courses related to education and psychology. Their age ranged from 21-25 years old and they were approximately having the same language proficiency level.

Instruments

Two research instruments were used in this study: a Vocabulary Learning Strategies Questionnaire (VLSs), and a Vocabulary Size Test (VST) as explained below.

Vocabulary Learning Strategies Questionnaire (VLSs)

To identify the diverse range of vocabulary learning strategies used by the EFL undergraduate students in their vocabulary learning processes, a vocabulary learning strategies questionnaire (VLSs) was adopted from Schmitt (2000). This questionnaire comprises of two focal sections. The first one gather students' demographic information including gender, age and academic stage. In addition, section two comprises of 40 items which are distributed into five domains. These domains include first the determination strategies which refer to the strategies used to discover the meaning of unknown words which are covered in five items. The second domain is social strategies which refer to the strategies involving interaction with others and covered in five items. The third domain is memory strategies which refer to the strategies used to remember vocabulary. The fourth domain is cognitive strategies which refer to the strategies involving practice and analysis. Finally, the fifth domain is metacognitive strategies which refer to the strategies involving planning and evaluating one's own learning. The later three domains are covered by thirty items, 10 items for each one. See Table 2 for further information of the domains of the VLSs questionnaire.

Table 2 The Five Domains of the VLSs Questionnaire

Part No.	Domain Name	Domain Target	Number of Items
1	**Determination Strategies**	Strategies used to discover the meaning of unknown words.	5
2	**Social Strategies**	Strategies involving interaction with others.	5
3	**Memory Strategies**	Strategies used to remember vocabulary.	10
4	**Cognitive Strategies**	Strategies involving practice and analysis.	10
5	**Metacognitive Strategies**	Strategies involving planning and evaluating one's own learning.	10
		Total	40

This questionnaire was developed using a five-point Likert scale with the following choices: Never, Rarely, Sometimes, Often, and Always. The participants were instructed to select the option that best reflected their perceptions and attitudes toward each statement in the questionnaire.

The Vocabulary Size Test (VST)

The (VST) was implemented to detect and calculate the students' vocabulary knowledge. The VST was designed based on Beglar and Nation (2013). It comprises of 40 multiple-choice items, each with four alternatives, which addresses students' various classes of words knowledge in their contexts. Accordingly, students were instructed to select the meaning of the word that best correspond to the specified word. Each accurate answer was given one mark, and the total score was multiplied by 250 to calculate the students' vocabulary size, that cover 10,000-word families.

The decision to use this version of the test was for time efficiency, since the full version typically entails over 30 minutes to complete. Nation (2013) also notes that non-native speakers with a vocabulary range of 5,000–6,000 word families are adequately prepared for studying at an English-medium university.

For the purpose of validity, both research instruments were evaluated by five experts to ensure alignment with the study's objectives. The experts critically examined the items, identified minor weaknesses, and confirmed the instruments' validity, provided that the suggested revisions were carefully implemented. All recommendations were incorporated into the final versions.

Regarding reliability, internal consistency of measuring scale items was examined in the two instruments of the study accompanied with calculating Cronbach's Alpha coefficient which is widely used method for assessing test internal consistency" (Tang, Cui & Babenko, 2014). "Internal consistency, in general, permit the test to be considered as a collection of repeated measurements, and each item to be viewed as a single measurement" (Paulsen & BrckaLorenz, 2017). A measure employed in human dimension research is frequently thought to have a Cronbach's Alpha of (0.70 - 0.80) or higher (Brown, 2002). Accordingly, the two instruments of the study were piloted to 25 undergraduate students. The analysis revealed that the VLSs questionnaire demonstrated strong reliability with a Cronbach's Alpha of 0.89, while the VST achieved a reliability coefficient of 0.93.

Data Collection Procedures

After getting permission from the department of English in the College of Education for Humanities, and the College of Education for Women, the two research instruments were shared with the sample of the study via the use of Google Forms. To ensure accurateness of the students' responses, the process of administering the two research instruments were attached by clear and explicit instructions for answering them. Besides, participants were guaranteed anonymity, and their responses were designated solely for research purposes. Moreover, the questionnaire items were translated to the students' native language to decrease the effect of anxiety and hesitation and to guarantee their perfect understanding of the meaning of each item and consequently guarantee students actual responses.

As for the VLSs questionnaire, it was administered first to the sample of the study and in light with the procedures recommended by the same designer of questionnaire. The participants were probed to tick their ideal strategy when they learn vocabulary by rating each item on a Likert-five scale type from (Never, Rarely, Sometimes, Often, and Always). During a subsequent session, the students were asked to complete the vocabulary size test, which measured their vocabulary capacity. They were prompted to select the best answer for each item in the vocabulary size test.

Finally, it is worth to mention that the students were participated in a voluntary base, though they did not receive any monetary compensation for their agreement to participate. They were clearly informed that their participation would not affect their course grades positively or negatively as their responses to the research instruments are collected for research purposes only. Besides, they were informed that students' identities and their responses will be kept anonymous. Accordingly, students were very eager to actively participate. Overall, 258 completed questionnaires and VLT papers were gathered.

Data Analysis

As the data obtained for this research were quantitative in nature, descriptive statistics such as means, standard deviations, t-test, and Person Correlation Coefficient were calculated to obtain average reported frequency of strategy use across all students plus the most and the least use of subcategory strategies. Descriptive analysis was used to determine the most and the least frequently utilized VLSs. Moreover, descriptive statistics were also conducted to determine the learners' vocabulary levels. Pearson's Correlation was performed to investigate the relationship between participants' VLSs and VS. Finally, multiple regression analysis was applied to determine the contribution and influence of VLSs on the VS of participants.

Finally, the data were processed and presented visually through charts and tables for a comprehensive understanding of the research findings.

FINDINGS AND DISCUSSION

Findings related to the first objective of the study

To address the first objective, "To identify vocabulary learning strategies among Iraqi EFL undergraduate students.", the results of the VLSs' were statistically analyzed. As shown in Table 3 below, the students got a mean score of 135.6 as matched to the theoretical mean of 120, with a standard deviation of 19.32. When processing a one-sample t-test, results yield a calculated t-value of 13.84, which is higher than the critical t-value of 1.972 at a significance level of 0.05 with 257 degrees of freedom. These findings indicate that Iraqi EFL undergraduate students reveal a high rank of proficiency in their use of vocabulary learning strategies.

Table 3 The Mean Scores, Standard Deviations, and One Sample T-Value of the Students' VLSs Questionnaire.

Group	No. of students	Mean	SD.	Theoretical Mean Score	T-Value		DF	Level of Significance
VLSs	258	135.6	19.32	120	Calculated	Tabulated	257	0.05
					13.84	1.972		

For further analysis of the questionnaire domains to examine the superiority of these domains among the others, mean scores and standard deviations were calculated for each domain in the questionnaire as shown in Table 4 below.

Table 4: The Mean Scores, Standard Deviations, and Ranks of the Five Domains of the Students' VLSs Questionnaire.

Variables	N	Minimum	Maximum	Mean	Std. Deviation	Level	Rank
Determination Strategies	258	1.80	5.00	3.44	0.632	Medium	4
Social Strategies	258	1.40	5.00	3.18	0.753	Medium	5
Memory Strategies	123	1.90	5.00	3.63	0.639	Medium	2
Cognitive Strategies	258	1.70	5.00	3.46	0.645	Medium	3
Metacognitive Strategies	258	2.00	5.00	3.73	0.697	High	1

Based on Table 4, results revealed that the Metacognitive Strategies attained the first rank among the other domains with high level with mean score of 3.73 and a standard deviation of 0.697. Memory Strategies got the second rank with medium level with mean score of 3.63 and a standard deviation of 0.639. Following this is Cognitive Strategies which got the third rank with medium level with mean score of 3.46 and a standard deviation of 0.645. The fourth rank was given to the Determination Strategies which attained a mean score of 3.44 and a standard deviation of 0.632. Finally, Social Strategies was ranked the last domain as their mean score is 3.18 and their standard deviation was 0.753. For the analysis of the questionnaire domains to examine the superiority of each domain among the others see Figure 2 below.

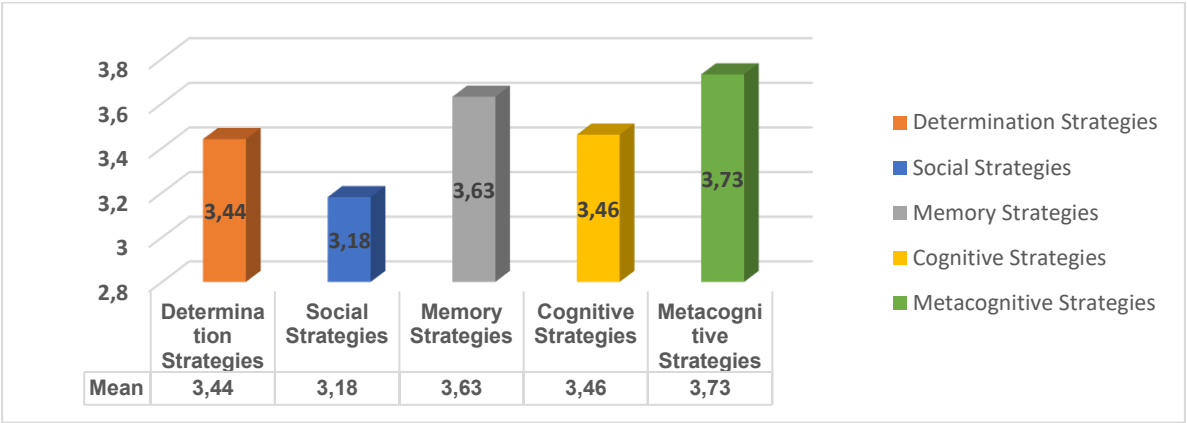

Figure 2 An Illustration of the Superiority of Each Domain among the Others of the Students' VLSs Questionnaire.

Findings related to the second objective of the study

To address the second objective, "To assess vocabulary size among Iraqi EFL undergraduate students.", students' responses to the vocabulary size test was statistically computed and revealed the following results as indicated in Table 5 below.

Table 5: Results of Vocabulary Size Test among Iraqi Undergraduate Students.

Levels	Frequencies	Percentages
36-40: Advanced	110	42.64%
31-35: Upper-Intermediate	52	20.16%
21-30: Intermediate	44	17.05%
11-20: Beginner	46	17.83%
0-10: Basic / Needs improvement	6	2.32%
Total	258	100%

In Table 5, the classification of students' levels depended on their vocabulary test scores reveals that the largest level goes to the Advanced Learners group (42.64%), meaning that nearly half of the participants possess a broad vocabulary that enables them to comprehend complex academic texts and communicate fluently. The middle categories of EFL students' vocabulary size reveals diverse abilities: 20.16% are at the Upper-Intermediate level, which affords active daily communication, while 17.05% is within the Intermediate level, and 17.83% within the Beginner level. The latter two groups which with the sum of (34.88%) indicate students with a more restricted vocabulary size, suitable for simple use but inadequate for understanding noncomplex simplified academic materials. Finally, 2.32% of students only were classified as Basic/Needs Improvement. This indicates that extremely low vocabulary levels, which could meaningfully impede academic performance, are rare. See Figure 3 for a clear illustration of vocabulary size among Iraqi EFL Undergraduate Students.

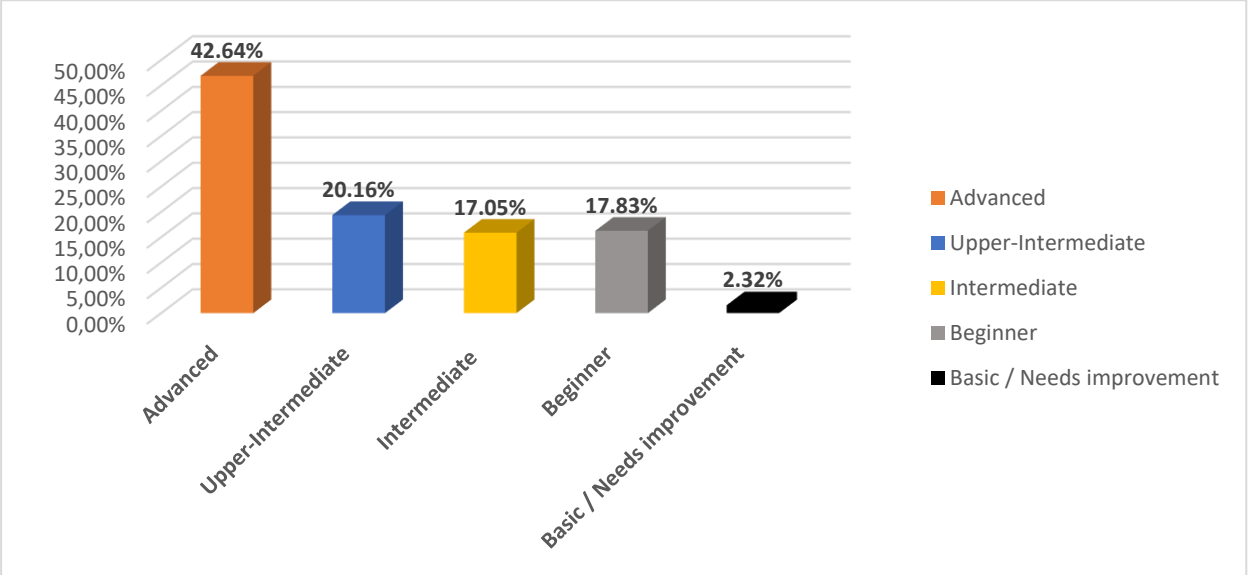

Figure 3: Vocabulary Size Levels among Iraqi Undergraduate Students.

Findings related to the third objective of the study

The third objective "To investigate the relationship between vocabulary learning strategies and vocabulary size among Iraqi EFL undergraduate students". To examine the extent of the relationship, Pearson correlation coefficient was used. The results of the analysis indicated than a calculated r-value of 0.673, which exceeds the critical value of 0.194 at a significance level of 0.05 with a sample size of 258. Accordingly, this result indicates that there

is a strong positive relationship between vocabulary learning strategies and vocabulary size among Iraqi EFL undergraduate students, as presented in Table (6).

Table 6: The Correlation between Vocabulary Learning Strategies and Vocabulary Size.

Sample Size	R- Value	Critical value	Significance 0.05
258	0.673	0.194	Sig.

To scrutinize the plausible significant correlation between each domain in the VLSs' domains and VST, further analysis was processed as demonstrated in **Table 7** below.

Table 7 The Correlation between the Various Domain in the Vocabulary Learning Strategies Questionnaire and Vocabulary Size.

No.	Variables	R-Value	Critical Value	Level of Significance
1.	Determination Strategies-Vocabulary Size Test	0.346	0.163	Sig.
2.	Social Strategies- Vocabulary Size Test	0.243		Sig.
3.	Memory Strategies- Vocabulary Size Test	0.593		Sig.
4.	Cognitive Strategies- Vocabulary Size Test	0.258		Sig.
5.	Metacognitive Strategies- Vocabulary Size Test	0.090		Not Sig.

Based on the table mentioned above, results indicated that the correlation is statistically significant between the vocabulary size test in one hand and all domains of the vocabulary learning strategies questionnaire in the other hand, except the metacognitive strategies domain where its correlation with the vocabulary size test was not significant since its r-Value which is 0.090 is lower than the critical value which is 0.163.

Discussion

The findings of the present study revealed that Iraqi EFL undergraduate students demonstrated a relatively high level of vocabulary learning strategy (VLS) use. Among the five categories of strategies, metacognitive strategies were the most frequently used (M = 3.73), followed by memory strategies (M = 3.63), then cognitive strategies (M = 3.46). Determination strategies attained the fourth rank with (M = 3.44) followed by social strategies (M = 3.18) which was the less frequently employed one. This clearly indicates that Iraqi EFL undergraduate students rely essentially on individual and self-directed learning strategies, that emphasize planning, organizing, and monitoring their vocabulary learning rather than cooperative or interactive ones.

These results are in accord with Oxford's (1990) and Schmitt's (1997) results, where memory and metacognitive strategies are primarily favored by EFL students in contexts with restricted exposure to authentic English input. This favour of metacognitive use of learning strategies also shows learners' awareness and control over their learning processes, which can augment their long-term vocabulary retention (Nation, 1997).

As for vocabulary size results, almost half of the students (46.89%) attained an advanced level of vocabulary knowledge, meaning that, they are capable of understanding complex academic texts and articulating themselves effortlessly, Besides, 19.37% of students were within the upper-intermediate level suitable for daily communication. However, 1.55% of the students only were within the basic level of vocabulary size, consequently, they need improvement. This distribution echoes a generally adequate vocabulary competence among Iraqi undergraduates. This fact is highlighted by Beglar and Nation (2013), stating that an advanced vocabulary size enables students to understand around 95–98% of the words in academic texts, and this facilitates actual reading comprehension and academic success together. Thus, students' overall vocabulary competence can be regarded as a strong base for further language progress. Despite this fact, the manifestation of limited vocabulary knowledge exerted by a small group of students necessitates the need for remedial activities and additional exposure to English listening and reading materials.

With regard to the correlation between the results of vocabulary learning strategies and vocabulary size, the value of correlation analysis shown an overall noticeable correlation between the two variables. This revealed that the amount of students' vocabulary size increased as a result of their use of vocabulary learning strategies.

When exploring individual strategy categories, results revealed that the correlation is statistically significant between the vocabulary size test, and all domains of the vocabulary learning strategies questionnaire, except the metacognitive strategies domain where its correlation with the vocabulary size test was not significant. This entails that communicative interaction—such as words used by the students in peers' discussion, engagement in collaborative activities together, and asking for meanings—plays an essential role in vocabulary development. Thus, these results are in accord with the findings of earlier studies such as Gu and Johnson (1996) and Fan (2003), who also noticed that socially directed learning strategies considerably enrich students' vocabulary acquisition by affording authentic opportunities and contexts for negotiation of meaning.

In the EFL learning context in Iraq, where English coverage is often constrained to classroom boundaries, boosting more socially collaborating learning environments could help EFL students increase their vocabulary size more efficiently. Thus, it is necessary recommended to integrate cognitive, metacognitive, and social strategies in classroom communicative activities to enhance indepth and more feasible vocabulary learning.

CONCLUSION

The study examined vocabulary learning strategies and vocabulary size among EFL undergraduate students at an Iraqi university and found that students actively used metacognitive, memory, and cognitive strategies to develop their vocabulary. A significant positive correlation was identified between most strategies and vocabulary size, showing their contribution to overall language proficiency, particularly through metacognitive and memory strategies such as planning, awareness, and self-monitoring. However, frequent use of certain strategies did not always indicate effectiveness, as some strategies may only support short-term retention when used in isolation. This study provides empirical evidence from an under-researched Iraqi EFL context and highlights the importance of training students to apply strategies effectively. Despite its contributions, the study is limited by a small sample size and reliance on self-reported data, which may affect generalizability. Therefore, future research is encouraged to use mixed-method or longitudinal designs, explore the effectiveness of different strategies, and examine the role of strategy instruction and digital tools. Overall, integrating strategy-based instruction into EFL curricula is essential to enhance vocabulary size, language proficiency, and learner autonomy.

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