The Use and Evaluation of Vocabulary Learning Strategies among Sudanese EFL Learners

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Abstract
The learning of new vocabulary as a part of English for Foreign Language (EFL) teaching and learning has not been investigated thoroughly because its effectiveness has been questioned by various researchers in the past. However, in recent years, various studies have shown that proper strategies in acquiring new words could be one of the keys to effective language learning among EFL learners. This study investigates how Sudanese EFL learners at Khartoum University, Sudan use and evaluate vocabulary learning strategies (VLSs). The three selected categories of vocabulary learning strategies - metacognitive, discovery, and consolidation - were chosen according to taxonomies proposed by Al-Fuhaid (2004), Schmitt (1997) and Nation (2001). These VLSs were then evaluated using Han's *Information Processing Theory* and Craik and Lockhart's *Depth of Processing Theory* (1972) to meet the two objectives of this study. The first objective was to examine the most frequently used VLSs employing a set questionnaire designed to elicit the necessary data. The second objective was to evaluate the usefulness of each of these VLSs by conducting in-depth interviews with the respondents. The results showed that metacognitive strategies were the most frequently used VLS among the three. In-depth interview data revealed that respondents evaluated all three VLS positively and considered them very useful in acquiring as well as understanding words. These findings suggest that language learners in Sudan should be taught vocabulary enhancing techniques while language instructors should use and teach these VLS to learners explicitly.
 Key words: English as a foreign language, vocabulary learning, vocabulary learning strategies

1. **Introduction**

Vocabulary has a very significant role in learning a language and has been considered as an integral component of a language. Without sufficient vocabulary knowledge, learners cannot achieve the goal of learning a language satisfactorily. The learning of vocabulary is one of the most significant challenges that FL learners encounter in the process of acquiring a foreign language (Ahmadi *et.al*, 2012). Ironically, despite its importance, vocabulary has been a neglected variable for a long time. Recently, some researchers have been creating greater awareness of vocabulary. For example, Alfaki (2015) states that the new orientation towards vocabulary learning is due to the expansion of the audio-lingual method and the communicative approaches. As a result, the field of applied linguists has minimised the findings on syntax and paid more attention to the lexicon. A flourishing of vocabulary has created and increased the number of publications on vocabulary aimed at assisting language instructors and curriculum designers. Researchers such as Laufer and Sim (1985), Read (2000), Decarrico (2001), Nation (2001) and others have confirmed that learning vocabulary is central to the development of language proficiency and essential for acquiring the four language skills.

On the other hand, the majority of learners consider vocabulary learning as their greatest source of difficulties (Meara, 1980). Nation (1990) points out that students believe many of their problems faced in using language receptively and productively are due to lack of vocabulary. Alqahtani (2015) discusses two reasons that may cause the difficulty of vocabulary learning by learners: firstly, the open-end of a vocabulary is observed to be a source of difficulty, and secondly, there are no vocabulary rules that learners can use to enhance their knowledge of vocabulary like other systems such as syntax and phonology. Sarani and Kafipour (2008) discover that EFL learners have poor vocabulary knowledge and the use of strategy in vocabulary learning.

Learners of English as a foreign/second language need to be introduced to the strategies which can help them to acquire vocabulary. These strategies are called 'vocabulary learning strategies' (VLSs) (Gu, 1994, as cited in Saengpakdeejit, 2014). Dóczi (2011) emphasises that VLSs are essential since acquiring vocabulary is a never-ending process and can solve the vocabulary issues for language learners. Hence, it is correct to say that in utilising VLSs, students can achieve the goal of vocabulary learning efficiently and successfully (Saengpakdeejit, 2014). Learners need to engage themselves in learning vocabulary strategies because it is a difficult task for teachers to introduce all vocabulary items for their learners in the class. Students have to learn to become independent learners by organising their vocabulary learning strategies in vocabulary learning. As such, the primary aim of this study is to improve the position of vocabulary learning at the tertiary level by exploring and evaluating the use of VLSs among Sudanese learners of English as a foreign language. This study also tries to eliminate the difficulties in vocabulary learning among EFL learners in general and Sudanese learners in particular by introducing a taxonomy of VLSs which includes three major types of vocabulary learning strategies; namely; metacognitive, discovery, and consolidation strategies. These three VLSs play an important part in vocabulary learning, with regard to building up the vocabulary store, discovering the meanings of new words effectively as well as retaining the meanings of these words for a long time.

Sudanese learners at tertiary level are known to encounter many difficulties when they learn EFL, and one of the main problems is the lack of vocabulary knowledge (Ahmed, 1989; Nur,

2012). Vocabulary learning is not precisely defined in the curriculum in Sudanese universities despite the obvious limitations of vocabulary knowledge. The curriculum of English language at tertiary level in Sudanese universities has been affected by the notion of 'Arabicisation' and the standard of the English language has declined. This deteriorated situation compounds the other factors that have contributed to the problem of lack of vocabulary learning in Sudan such as the absence of an adequate syllabus (Mohamed, 2014). Ali and Ahmed (2015) claim that Sudanese learners' inability to acquire vocabulary may be due to the fact that teaching vocabulary has been relegated to a minor position in contrast to the teaching of syntax. Thus, the English language curriculum in Sudan suffers from a lack of the knowledge of basic vocabulary learning and this has resulted in Sudanese learners having to face some difficulties in acquiring English vocabulary.

Vocabulary learning in Sudan relies on teachers as the primary source. However, the method of teaching the English language in Sudan has gone beyond traditional teaching since the focus is on learning grammar rules rather than vocabulary. Also, the method of assessment is based on testing of knowledge about the language in a final examination rather than the use of the language (O'Brien & Nur, 2014). The result is the absence of independent vocabulary learning in Sudan, even though it is an important aspect of second language (L2). Independent vocabulary learning is often the sole option left for L2 learners for two reasons: first, the needs of L2 vocabulary learning go beyond a standard teacher-led course; second, the contact between teachers and students is often weak and inadequate (Tudor, 1993). As a result, independent vocabulary learning needs to be achieved by Sudanese EFL learners to become self-directed generally in vocabulary learning and particularly in vocabulary learning strategies.

On the other hand, Sudanese EFL learners realise the importance of vocabulary knowledge, but they do not know the best ways to learn and expand their vocabulary store. They may encounter difficulty in detecting the meaning of new words accurately while they are reading texts in the English language, which involves a number of new words. They face difficulties in remembering new words; as a result, they prefer to avoid using them (e.g., Ahmed, 1989; Nur, 2012).

In language learning, there are no clear theories on vocabulary acquisition because vocabulary is perceived as a neglected aspect (Meara, 1980). However, the theoretical foundations of language learning strategies emerge from two learning perspectives: cognitive perspective and socio-cultural perspective (Han, 2014). This study connects vocabulary learning with the cognitive perspective in which L2 learning is a complex cognitive skill. It concentrates on the cognitive perspective as a baseline which mainly focuses on information-processing theory and the depth of processing hypothesis developed by Craik and Lockhart (1972).

Both theories characterise the construction of memory. The information processing theory investigates the features of VLSs through the process of vocabulary learning while the depth of processing hypothesis clarifies the effectiveness of these strategies from the levels of influence (e.g. how the information is processed in the memory, either at a superficial level or at a deeper level). The information processing theory explores the idea of "chunking" and the ability of short-term memory. It discusses the notion that the short-term memory has limited mental capacity. Craik and Lockhart (1972) discuss that memory is merely an outcome of the depth of processing. Perception occurs as a continuous sequence from shallow processing to deep

processing and this is known as "depth of processing" or "levels of processing" (Craik & Lockhart, 1972, p. 675).

This study utilises the taxonomy of VLSs which is adopted from Al-Fuhaid (2004) and based on the analysis of Schmitt's (1997) and Nation's (2001) VLSs taxonomies. However, Al-Fuhaid (2004) has modified, deleted, added, and reclassified the major strategies of Schmitt's (1997) VLSs taxonomy into three VLSs: metacognitive, discovery, and consolidation. The metacognitive strategies are expressed as a deliberate overview of the learning process and decision making about planning, monitoring or evaluating the best way to study. The discovery strategies are the actions adopted by learners to determine the meaning of unfamiliar words, while the consolidation strategies refer to how the learner consolidates the information of new words after having gained and having kept them in long term memory. Schmitt's (1997) VLSs taxonomy involves two main groups: the first group called discovery, and containing determination and social strategies, while the second group called consolidation comprises cognitive, metacognitive and memory strategies (Schmitt, 1997). The VLSs taxonomy uses in this study differs from Schmitt's (1997) VLSs taxonomy in that the metacognitive strategies are viewed as an independent type of strategy from the consolidation strategies. Al-Fuhaid (2004) indicates that metacognitive strategies can serve the same purposes of consolidation strategies. Metacognitive, discovery, and consolidation strategies are significant for learners because these strategies assist students to cope with the limited capacity of short-term memory and also to transfer information from short-term memory to long-term memory.

2. Review of Literature

Various researchers have proposed several definitions of VLSs based on their respective views. For example, Oxford (1990, p.1) describes VLSs as "actions utilised by language learners to promote their learning process and these strategies are essential for self-directed learning". Cameron (2001, p. 92) states that VLSs are the processes that language learners employ to help them in comprehending and recalling vocabulary items. In addition, Takač (2008) describes VLSs as:

> Activities, behaviours, steps, or techniques used by learners (often deliberately) to facilitate vocabulary learning. Vocabulary learning strategies can help learners to discover lexical items (both their meanings and forms), and to internalise, store, retrieve, and actively use these in language production. (p.106)

Many researchers have conducted studies on the use of VLSs among second and foreign language learners. For example, in the Malaysian context, Asgari and Mustapha (2011) investigate the type of VLSs used by Malaysian students majoring in teaching English as a second language TESL. Data were collected via open-ended interviews. Respondents were eight students studying at the Faculty of Educational Studies in Universiti Putra Malaysia (UPM).The results show that favourable strategies used by learners were acquiring new words while reading, using monolingual dictionary, using media, and utilising new English words in their daily speaking, determination and metacognitive strategies. However, strategies which required deep cognitive processing including using English labels, repeated listening to a tape of word lists, and using cards were not used by the respondents of this study.

Kalajahi *et.al* (2014) examines the VLSs among Malaysian students majoring in TESL at Universiti Putra Malaysia (UPM). Data were collected by using a questionnaire adopted form

Schmitt (1997). Respondents were 50 undergraduate students. The results suggest that metacognitive strategies were utilised very often by UPM undergraduate learners. The results also show that social strategies were the least used strategies because most of the curriculum design did not encourage collaborative and social learning.

Rabadi's study (2016) explores the use of VLSs by undergraduate Jordanian students who were English language majors. Data were collected via a questionnaire of VLSs adopted from Schmitt (1997). Respondents were 110 Jordanian students majoring in English language and literature selected from eight Jordanian universities. The results indicate that memory strategies were used most frequently while metacognitive strategies were utilised least frequently.

In the Sudanese context, a few studies are carried out on VLSs by Sudanese students. Ahmed (1989) is the pioneer in studying VLSs in Sudan. He investigates the use of VLSs by 300 Sudanese learners of English to determine the micro-strategies and strategy patterns adopted by good and poor learners. Data were collected using think-aloud protocol, observations, and interviews for learning 14 new words. The results indicate that 38 micro-strategies were grouped into six macro-strategies; information sources, dictionary use, memorisation, practice, preferred source of information, and note-taking. The results also show that both good and poor learners show various manners of strategies usage, while, poor learners use a small number of vocabulary learning strategies.

The results of past work show that students utilised different types of VLSs in the process of their vocabulary learning. Previous literatures also indicate that students used the strategies of vocabulary learning in different way. The different uses of VLSs resulted in different investigations in terms of samples and contexts. In fact, there is a gap in the literature in the Sudanese context regarding the use and evaluation of VLSs among Sudanese university students taking English language as a major course. Therefore, this study attempts to fill this gap in order to encourage students to utilise self-directed learning by employing vocabulary learning strategies.

3. Methodology
Participants
The sample of this study was 60 Sudanese EFL learners in their fourth year of study, in the Department of English, Faculty of Education, Khartoum University. They were male and female students and their ages ranged from 18 to 35 years old.

Instruments
This study used two instruments in the process of data collection. These were; questionnaire and in-depth interviews. An adopted version of VLSs questionnaire proposed by Al-Fuhaid (2004) based on the VLSs taxonomies of Schmitt (1997) and Nation (2001) was utilized in this study. It consisted of two parts; the first part elicited details about students' demographic background such as gender, age, and the time when they started learning English. The second part consisted of 53 items, which were grouped into three strategies, metacognitive strategies (20 items), discovery strategies (12 items), and consolidation strategies consisting of memory strategies (12 items) and cognitive strategies (9 items). In-depth interviews were conducted to evaluate the usefulness of each of the three VLSs by respondents. Interviews were utilised to add comments that supplemented the information obtained from the questionnaire results. Respondents were

interviewed individually by the researcher who used the same questionnaire items as a tool for the interview.

Procedure

The questionnaire was administered in one session, for 60 students in the fourth year taking English language as a major. The data from the questionnaire were statistically analysed and the analysis was done through frequency counts, descriptive statistics, as well as correlational analysis for all three strategies. The collected data via the interviews were applied to interpret the results and findings of the questionnaire. Interviews were conducted over four days and they were held for respondents in order to obtain more specific data relating to students' evaluation of VLSs.

Results and Discussion

The research questions attempt to examine the most frequently used VLSs (metacognitive, discovery and consolidation) by Sudanese EFL learners. They are also used to evaluate the usefulness of each of the three VLSs by Sudanese EFL learners. Tables 1 to 7 summarise the use and evaluation of the three VLSs (metacognitive, discovery and consolidation) by respondents.

Findings on Metacognitive Strategies

The first part of the questionnaire includes metacognitive strategies which refer to a conscious overview of the learning process and making decisions about planning monitoring or evaluating the best way to study. Metacognitive strategies involve 20 sub-strategies. The highest use of individual metacognitive strategies registered 91.6%. The lowest frequency use of the individual metacognitive strategies was recorded at 31.6%. The following table shows the individual use of metacognitive strategies employed by the respondents.

Table 1. *The Use of Metacognitive Strategies by Respondents*

Metacognitive Strategies	Frequency Responses	%
Learning words from a published word list	54	90.0%
Learning words from published word cards	28	46.6%
Trying to learn directly from a dictionary	55	91.6%
Watching TV channels	48	80.0%
Listening to radio programmes	30	50.0%
Reading newspapers	25	41.6%
Surfing the Internet	46	76.6%
Making use of on-screen English-Arabic translation	46	76.6%
Learning vocabulary through graded reading	39	65.0%
Learning vocabulary through controlled reading	39	65.0%
Learning vocabulary through free reading	54	90.0%

Ignoring new words	19	31.6%
Planning vocabulary revision	41	68.3%
Evaluating L2 vocabulary knowledge	39	65.0%
Continuing to learn vocabulary over time	40	66.6%
Interacting with native speakers of English	47	78.3%
Discussing vocabulary learning problems and requirements with a teacher	24	40.0%
Cooperating with classmates to improve vocabulary	47	78.3%

Table 1 shows that four metacognitive strategies registered high frequency use by respondents and ranged from 80.0% to 91.6%. These include strategies of (a) learning words from a published word list (90.0%), (b) trying to learn directly from a dictionary (91.6%), (c) learning vocabulary through free reading (90.0%), and (d) watching TV channels (80.0%). This finding is consistent with Al-Fuhaid's (2004) and Schmitt's (1997) studies in which Saudi learners and Japanese learners asserted that they used these strategies frequently to build up their vocabulary store. Nine metacognitive strategies scored moderate range of frequency use among respondents and ranged from 65.0% to 78.3%. These involve the strategies of (a) learning vocabulary through graded reading (65.0%), (b) learning vocabulary through controlled reading (65.0%), (c) evaluating L2 vocabulary (65.0%), (d) continuing to learn vocabulary over time (66.6%), (e) planning vocabulary revision (68.3%), (f) making use of on-screen English-Arabic translation (76.6%), (g) surfing the Internet (76.6%), (h) interacting with native speakers of English (78.3%), and (i) cooperating with classmate to improve L2 vocabulary (78.3%).

However, five metacognitive strategies registered less frequency use by respondents, which ranged between 31.6% and 50.0%. These comprise the strategies; (a) ignoring new words (31.6%), (b) discussing vocabulary learning problems and requirements with a teacher (40.0%), (c) reading newspapers (41.6%), (d) learning words from published word cards (46.6%), and (e) listening to radio programmes (50.0%). Respondents' comments from the interview indicated that, the low frequency use of these strategies is due to several reasons. The strategies such as learning words from published cards take time and are suitable for beginners and also, both strategies of learning vocabulary from radio and newspapers were less utilised due to the lack of English programmes through radio and newspapers in Sudan. Respondents' comments from the interview also revealed that asking teachers regarding vocabulary problems and requirements is not efficient because teachers may help regarding course requirements but not for learning vocabulary.

Table 2 shows respondents' evaluation of metacognitive strategies.
Table 2. *The Evaluation of Metacognitive Strategies by Respondents*

Metacognitive Strategies	**Evaluation Responses**	**%**
Learning words from a published word list	58	96.6%
Learning words from published word cards	41	86.3%
Trying to learn directly from a dictionary	59	98.3%
Watching TV channels	55	91.6%

Listening to radio programmes	50		83.3%
Reading newspapers	40		66.6%
Surfing the Internet	47		78.3%
Making use of on-screen English-Arabic translation	48		80.0%
Learning vocabulary through graded reading	41		68.3%
Learning vocabulary through controlled reading		47	78.3%
Learning vocabulary through free reading		58	96.6%
Ignoring new words	21		35.0%
Planning vocabulary revision	42		70.0.%
Evaluating vocabulary knowledge	47		78.3%
Continuing to learn vocabulary over time	51		85.0%
Interacting with native speakers of English	54		90.0%
Discussing vocabulary learning problems and requirements with a teacher	46		76.6%
Cooperating with classmates to improve vocabulary	55		91.6%
Learning about VLSs and about the nature of L2 vocabulary	54		90%
Studying the English Affixation system	47		78.3%

Table 2 shows that the positive evaluation responses of metacognitive strategies are obviously higher than their frequency use. Seven metacognitive strategies obtained the highest percentages of the evaluation by respondents, and ranged from 90.0% to 98.3%. These strategies are; (a) learning about VLSs and nature of L2 vocabulary learning (90.0%), (b) cooperating with classmates to improve vocabulary (90.0%), (c) interacting with native speakers of English (90.0%), (d) watching TV channels (91.6%), (e) learning vocabulary through free reading (96.6%), (f) learning words from a published word list (96.6%), and (g) trying to learn directly from a dictionary (98.3%). The findings also show that most of the metacognitive strategies which obtained high percentages of frequency use also obtained high percentages of evaluation by respondents. For example, the strategies of (a) trying to learn directly from a dictionary (91.6% on use and 98.3% on evaluation), (b) learning vocabulary through free reading (90.0% on use and 96.6% on evaluation) and (c) interacting with native speakers of English (78.3% on use and 90.0% on evaluation). The data from the interviews support the data from the questionnaire in which most of respondents reported higher positive evaluation of metacognitive strategies. Examples from respondents' comments during interviews are provided below:

SR 11: "*learning from a dictionary is very useful strategy for enhancing my vocabulary store*".
SR 10: "*It's a very useful strategy, from my opinion; free reading is the best way for developing vocabulary knowledge*".

Findings on Discovery Strategies
This second part of the questionnaire presents results of the discovery strategies, which are defined as the steps taken by learners to discover the meaning of unknown words. Discovery strategies involve 12 sub-strategies. The highest frequency use of the discovery strategies employed by respondents registered 88.3%. The lowest frequency use of the discovery strategies received 30.0% from respondents. Table 3 shows the individual use of discovery strategies by the respondents.

Table 3. *The Use of Discovery Strategies by Respondents*

Discovery Strategies	Frequency Responses	%
Using English-Arabic dictionaries	53	88.3%
Using English/English dictionaries	29	48.3%
Using Arabic/English dictionaries	27	45.0%
Using electronic dictionaries	35	58.3%
Using vocabulary section or glossaries	28	46.6%
Using instant on-screen computer translation programmes	18	30.0%
Using the Microsoft Word Thesaurus icon	19	31.6%
Contextual guessing	48	80.0%
Analysing words units	42	70.0%
Seeking help from a teacher	39	65.0%
Asking classmates about the meaning of new words	51	85.0%
Discovering the meaning of new words through group work	39	65.0%

Table 3 shows that three discovery strategies registered high frequency use by respondents and they range from 80.0% to 85.0%. These are the strategies of (a) using contextual guessing (80.0%), (b) asking classmates about the meaning of new words (85.0%), and (c) using English-Arabic dictionaries (88.3%).This finding is in line with Schmitt's (1997), Al-Fuhaid's (2004) and Rabadi's (2016) studies, which reported that using bilingual dictionary strategy was the most frequently used by respondents. In addition, this finding is consistent with Schmitt's (1997), Fan's (2003), Al-Fuhaid's (2004), Kulikova's (2015) and Hashemi and Hadavi's (2015) studies, in which, guessing strategy was the most frequently used by their respondents. Both strategies of using instant on-screen computer translation programmes and using the Microsoft Word Thesaurus icon registered lower frequency use by respondents. This is because Sudanese EFL learners are not aware of using computer-related strategies as well as the scarcity of computer laps and Internet connectivity in Sudanese universities. However, the comments of the respondents from interviews revealed that respondents have an interest to use such strategies but

the cost and unavailability of computers and Internet connectivity are the main reasons for low use of these strategies.

The following table shows respondents' evaluation of discovery strategies

Table 4. *The Evaluation of Discovery Strategies by Respondents*

Discovery Strategies	Evaluation Responses	%
Using English-Arabic dictionaries	53	88.3%
Using English-English dictionaries	44	73.3%
Using Arabic-English dictionaries	33	55.0%
Using electronic dictionaries	40	66.6%
Using vocabulary section or glossaries	34	56.6%
Using instant on-screen computer translation programmes	23	38.3%
Using the Microsoft Word Thesaurus icon	26	43.3%
Contextual guessing	51	85.0%
Analysing words units	48	80.0%
Seeking help from a teacher	52	86.6%
Asking classmates about the meaning of new words	54	90.0%
Discovering the meaning of new words through group work	47	78.3%

Table 4 shows that the positive evaluation responses of discovery strategies are obviously higher than their frequency use. Most discovery strategies which obtained high percentages of frequency use also obtained high percentages of evaluation by respondents. The results also show that the strategy of using English-Arabic dictionary received the highest percentage of evaluation response by respondents. This finding is consistent with Schmitt's (1997) study of Japanese EFL learners. Also, it was found that this strategy is the only discovery strategy that received the same percentage of 88.3% on frequency use and evaluation. A possible explanation for this could be that respondents felt it was important and necessary to use bilingual dictionaries more than other types of dictionaries. They admitted the importance and usefulness of such dictionaries, which might facilitate the learning of L2 words. Furthermore, these dictionaries provided meaning in L1, which was the easiest way for them to understand the definitions of new words more than other dictionaries. Besides, respondents realised they could use such dictionaries beneficially. Examples from respondents' comments during interviews include the following:

SR 10: "*bilingual dictionary is very useful. I like using such a dictionary
because I am familiar with it and also I have experience regarding
using it*".
SR 12: "*In my opinion, English-Arabic dictionary is very useful because
it provides the meanings of new English words in the Arabic language*".

Findings on Consolidation Strategies

The third part of the questionnaire involves consolidation strategies, which refer to how learners consolidate the information of new words after having gained and kept them in long term memory. Consolidation strategies encompass memory and cognitive strategies. Memory strategies include 12 sub-strategies and cognitive strategies comprise 9 sub-strategies. The highest frequency use of the consolidation strategies employed by respondents registered 90.0%. The lowest frequency use of the consolidation strategies received 28.3% from respondents. Table 5 presents the individual use of consolidation strategies by respondents.

Table 5. *The Use of Consolidation Strategies by Respondents*

Consolidation Strategies	Frequency Responses	%
Using pictures/imagery	43	71.6%
Using the keyword method	26	43.3%
Using semantic feature grids	19	31.6%
Using semantic maps	17	28.3%
Using scales for gradable words	17	28.3%
Learning multi-word units	38	63.3%
Noting a new word into a sentence or a phrase	47	78.3%
Studying the spelling of new words	45	75.0%
Studying the pronunciation of new words	39	65.0%
Connecting a word to a personal experience	48	80.0%
Connecting a new word to its synonyms or antonyms	48	80.0%
Associating a new word with its coordinates	38	63.3%
Verbal repetition	54	90.0%
Written repetition	53	88.3%
Repeated listening to a tape-recorded story	37	61.6%
Repeated listening to a tape-recorded word list-	41	68.3%
Repeated listening to other materials	31	51.6%
Taking vocabulary notes	36	60.0%
Designing a word list	37	61.6%
Designing flash cards	21	35.0%
Using revision materials	36	60.0%

Table 5 shows that four consolidation strategies are found to be most frequently used by respondents and they ranged from 80.0% to 90.0%.   These include the strategies of (a) connecting a new word to its synonyms or antonyms (80.0%), (b) connecting a word to a personal experience (80.0%), (c) written repetition (88.3%), and (i) verbal repetition (90.0%). The study supports the depth of processing hypothesis proposed by Craik and Lockhart (1972). Both strategies of connecting a new word to its synonyms or antonyms and connecting a word to a personal experience refer to deeper level of processing. According to the depth of processing hypothesis, these strategies are elaborated to a greater level and require greater cognitive analysis. Conversely, repetition strategies (verbal repetition and written repetition) belong to the shallow processing strategy and are not desirable strategies for the long-term memory; however, they are frequently used by learners. The results are found to be in line with Ahmed's (1989), Gu and Johnson's, (1996), Lawson and Hogben's (1996), Schmitt's (1997), Al-Fuahid's (2004) and Ta'amneh's (2014) studies, which showed that repetition strategies were the most frequently-used strategies by L2 learners.

The findings also indicate that five consolidation strategies were the least frequently used by respondents and ranged from 28.3% to 43.3%. These were; (a) using semantic maps (28.3%), (b) using scales for gradable words (28.3%), (c) using semantic feature grids (31.6%), (d) designing flash cards (35.0%), and (e) using the keyword method (43.3%). The lowest percentages of frequency use of these strategies are because these strategies require deep mental processing and take time. However, respondents of this study did not prefer complex strategies and they favoured strategies that were easy to understand and easy to apply. In addition, the strategy of designing flash cards was least frequently used by respondents because they remarked that this strategy was suitable for beginners and also it requires time. In line with Schmitts's (1997) and Al-Fuhaid's (2004) studies, designing flash cards strategy was also least frequently used by Japanese and Saudi EFL learners.

Table 6 shows respondents' evaluation of consolidation strategies.

Table 6. *The Evaluation of Consolidation Strategies by Respondents*

Consolidation Strategies	Evaluation Responses	%
Using pictures/imagery	51	85.0%
Using the keyword method	32	53.3%
Using semantic feature grids	24	40.0%
Using semantic maps	23	38.3%
Using scales for gradable words	27	45.0%
Learning multi-word units	43	71.6%
Noting a new word into a sentence or a phrase	51	85.0%
Studying the spelling of new words	50	83.3%
Studying the pronunciation of new words	44	73.3%

Connecting a word to a personal experience	46	76.6%
Connecting a new word to its synonyms or antonyms	51	85.0%
Associating a new word with its coordinates	42	70.0%
Verbal repetition	53	88.3%
Written repetition	53	88.3%
Repeated listening to a tape recorded story	46	76.6%
Repeated listening to a tape-recorded word list	45	75.0%
Repeated listening to other material	32	53.3%
Taking vocabulary notes	47	78.3%
Designing a word list	42	70.0%
Designing flash cards	27	45.0%
Using revision materials	42	70.0%

Table 6
indicates that all consolidation strategies obtained higher percentages of evaluation than frequency use with the exception of three strategies (connecting a word to a personal experience, verbal repetition, and written repetition). The possible reason for the less positive evaluation of connecting a word to a personal experience strategy may be attributed to the claim by respondents that it is a useful strategy but the association of new words with personal experience comes naturally and this is considered a main problem for them. With regard to repetition strategies, the possible reason could be that the majority of respondents were convinced about the usefulness of both strategies with the exception of a few respondents who were inclined to give more evaluation response to the verbal repetition than the written repetition and vice versa.

Nevertheless, three consolidation strategies registered the highest percentages of evaluation than the percentages of their frequency use. These are; (a) using pictures/imagery (71.6% on use and 85.0% on evaluation), (b) noting a new word into a sentence or a phrase (78.3% on use and 85.0% on evaluation), and (c) studying the spelling of new words (75.0% on use and 83.3% on evaluation). This result indicated that respondents realised the usefulness of these strategies and they were willing to use such strategies. Noting a new word into a sentence strategy registered 85.0%, as a high percentage of evaluation by respondents. This result supports the idea of the information processing theory in which grouping words into meaningful chunks is very helpful in both storage and retrieval of words. In addition, the strategy of using pictures/imagery also received 85.0% as a high evaluation response by respondents. This result supports the depth of processing hypothesis; information can be encoded based on the nature of stimulus, such as visual, phonemic, semantic associations, or related images. The data of the interviews also support the findings of the questionnaire in which respondents reported that consolidation strategies as useful strategies. Examples from respondents' comments during interviews are as follows:

> SR 3: "*The strategy of using pictures/imagery is useful for remembering*
> *words for a long time*".
> SR 4: "*The strategy of noting a new word into a sentence is very useful. It helps*
> *me to recall new words for a long time*".

With regard to the means for frequency use and evaluation of metacognitive, discovery and consolidation strategies; Table 7 shows means for frequency use and evaluation of the three strategies.

Table 7. *Means for Frequency Use and Evaluation of the Three Strategies*

Category	Frequency mean	Evaluation mean
Metacognitive Strategies	40.05	48.05
Discovery Strategies	36.50	42.08
Consolidation Strategies	36.71	41.47

Table 7 shows that metacognitive strategies registered the highest means for use and evaluation among other strategies; registering a mean of 40.5 on use and receiving a mean of 48.05 on evaluation. On the other hand, discovery strategies registered the second highest mean on evaluation with a score of 42.08% and received the third mean index of frequency use among other strategies with 36.50%. Consolidation strategies registered the third mean on evaluation with a score of 41.47% and received the second mean index of frequency use compared to other categories and received 36.71.

The findings on the questionnaire indicate that the mean index for all categories was very low. In line with the study of Kalajahi *et.al* (2014) and Asgari (2011), metacognitive strategies were utilsed very frequently by UPM undergraduate learners. Metacognitive strategies received the higher index of the frequency mean among other strategies because university students are high order in planning, monitoring in their own learning process. In addition, correlational analysis was done by using Pearson correlation to determine the relationship between the percentages of use and evaluation of meatcognitive, discovery and consolidation strategies. The findings on Pearson correlation indicate that there was a significant relationship between use and evaluation in terms of metacognitive strategies ($r=0.748$, $p<0.05$), discovery strategies ($r=0.936$, $p<0.05$) and consolidation strategies ($r=0.959$, $p<0.05$). This revealed that Sudanese EFL learners realised the importance and benefits of the three strategies.

In sum, findings from the questionnaire and interviews show that there were some reasons that affected the use of VLSs by Sudanese EFL learners. These were; (a) course requirements: the use of VLSs by respondents was governed by their course requirements in which respondents most frequently used the strategies that assisted them in learning their courses more than other strategies; (b) lack of knowledge of VLSs among respondents: the results indicated that the low frequency use of several strategies was because respondents did not have any idea about such strategies; (c) lack of facilities in Sudanese universities: such as shortage of computer labs and poor Internet access are the main reasons associated with the least frequency use of some strategies; and also, (d) inappropriate teaching methods in Sudanese universities: teaching methods in Sudan based on curriculum and by teachers without adequate training and with no workshops involving vocabulary learning and requirements. Therefore, it can be concluded that all these factors influenced the use of VLSs by Sudanese EFL learners.

On the other hand, the evaluation of the three categories is higher than their frequency use. This finding implies that learners are prepared to try new strategies if they are introduced to and trained in them (Schmitt, 1997). This sense of an autonomous vocabulary learning approach needs to be formulated in a proper way by introducing VLSs that registered lower percentages of use by respondents and explaining how they can apply each strategy and benefit from each one.

Conclusion

The findings of this study seem to suggest some implications for EFL settings. This study suggests that the language teachers should create awareness among the students of the significance of VLSs in promoting their learning by applying strategy training. Teachers and lecturers can motivate their learners to employ VLSs appropriately with the aid of more training regarding the least frequently used strategies such as English language media strategies, long-term strategies, and computer strategies. In turn, students would be able to experience successful learning in their academic studies. Future studies on VLSs can be conducted among other learners in different contexts, using other techniques in the process of data collection and also identifying the restrictions that may prevent students from employing various types of VLSs in their learning process.

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