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## Critical Thinking Ability and Vocabulary Learning Strategy Use: The Case of EFL Learners in an ESL Context

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### Abstract

Critical thinking is considered important in the field of education due to its possible effects on language learning. Therefore, the reasons behind the success and failure of language learners have provoked researchers to examine different aspects of the language learning process. Moreover, improving learners' critical thinking ability in the course of learning will enable students to rely on their own decisions and thoughts regarding the strategies and techniques that they would want to employ in learning the language. This paper reports the findings from a mixed-method study of 75 postgraduate students' critical thinking ability and vocabulary learning strategy use, as well as comparing the critical thinking score of proficient and less proficient students. Data were collected using Schmitt's vocabulary learning strategies questionnaire, California critical thinking skills test and semi-structured interviews. The findings revealed a statistically significant relationship between learners' critical thinking ability and vocabulary learning strategies.

**Keywords:** Critical thinking ability, EFL learners, Postgraduate students, Vocabulary learning strategies

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### INTRODUCTION

Learning a second or foreign language requires the use of the four language skills for an effective communication (Karami & Barekat, 2012). Despite the emphasis on acquiring the four language skills to reach higher levels of language proficiency, another important aspect is learners' knowledge of vocabulary that forms the major part of the meaning in any language (Hamzah, Kafipour, & Abdullah, 2009). Most difficulties in comprehension and production of a target language are due to learners' insufficient lexical knowledge (Shen, 2008). Thus, one of the challenges that learners will encounter during the

process of language learning is vocabulary learning. In relation to this, some researchers (e.g. Hatch & Brown, 1995) emphasized the necessity for some principled approaches to teaching and learning vocabulary. As a result, different approaches and techniques have been implemented in language classrooms. However, learners' choices of language learning strategies might be affected by a number of factors such as motivation, gender, age, learning style and critical thinking (Nikoopour, Amini Farsani, & Nasiri, 2011). Among the possible factors that might affect language learning strategies, critical thinking is the one possible factor, which forms the focus of this study.

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Enhancing learners' critical thinking ability and managing their ways of thinking may have significant impact on learners' overall language learning. Furthermore, improving learners' autonomy and critical thinking ability in the course of learning will enable them to rely on their own decisions and thoughts regarding the strategies and techniques that they would want to employ in learning a language.

Although developing students' critical thinking is of value to educators, in the developing countries there seem to be lack of emphasis on developing the necessary critical thinking skills (Khalili, Babamohammady, & Hajiaghajani, 2004). According to Nugent and Vitale (2008), critical thinking is a cognitive strategy by which you re-

fect on and analyze your thoughts, actions and decisions. In other words, it is defined as a self-regulatory judgment (Facione, 1990a) that leads the individuals towards questioning and evaluating their process of learning. Therefore, the success of learners in the language learning process requires them to question and decide over the methods and techniques that lead them to achieve the language learning objectives (Figure 1). In many language learning classrooms, the priority is assigned to developing the four language skills, with little attention to basic premises of higher level thinking. Thus, learners might gain a good command of the language itself but are, most probably, unable to think effectively using that language.



**Figure 1. Critical thinking and language learning**

## LITERATURE REVIEW

Critical thinking, as a form of high-level thinking (Smith, 2003), is a widely-used term in the literature. Critical thinking is defined as a higher order process of reasoning that allows a student to move beyond an individual viewpoint, to question assumptions, and to deeply analyze a range of complex information, issues, and problems (Celuch, Black, & Warthan, 2009). As reported by Facione (1990b), based on the consensus of experts on Delphi Panel, critical thinking was defined as 'purposeful, self-regulatory judgment'.

Furthermore, it is considered as one of the main concepts of education, especially at higher levels. As Moon (2007) believed, university students will become critical thinkers if critical thinking is explicitly depicted in higher education

curriculum. Hence, acquiring the ability to think critically should be emphasized in different learning contexts. Learning a foreign/second language requires a lot of flexibility and making use of higher order thinking skills, for this reason, critical thinking is considered as a factor that contributes to learners' success in language learning (Liaw, 2007).

As stated by Mahyuddin, Pihie, Elias, and Konting (2004) a learner who is capable of thinking critically and creatively in a language class, is more successful in achieving the goals of the curriculum, making use of these thinking skills for a lifelong learning. Thus, the importance of incorporating critical thinking into classrooms, irrespective of subject matter, is widely recognized. In relation to this, various studies have

investigated different aspects of critical thinking and its implication in language learning (Fahim & Komijani, 2010; Keihaniyan, 2013; Nour Mohammadi, Heidari, & Dehghan Niry, 2012).

Until the 1990s, critical thinking was only considered important in L1 speaking contexts. More recently, however, the ways in which critical thinking can be taught and interpreted have received the attention of scholars who look into major issues related to L2 learning (Thompson, 2002). Simultaneously, researchers like Cohen (2007), Griffiths (2003), Nunan (2002), Oxford (2002), and Prichard (2008) pointed out the significant role of language learning strategies in enhancing learners' mastery of a language.

In general, providing learners with useful learning strategies, can improve their success in learning, since strategies enhance students autonomy by allowing them to manage their own learning (Oxford, 1990). Identifying and employing these strategies assist learners in gaining proficiency in the target language and improving their learning skills. According to Schmitt (1997, p. 203), learning is "the process by which information is obtained, stored, retrieved and used, therefore vocabulary learning strategies could be any action which affect this broadly defined process". The importance of vocabulary in improving students' proficiency in a language has also been studied by researchers like Karami and Barekat (2012), who considered vocabulary a core component which provides the basis for learners' success in the four language skills. Yet research has shown that although learners make use of different strategies for learning vocabulary, they mostly tend to use the basic ones (Schmitt, 1997). To this end, integrating vocabulary instruction as a fundamental part of any foreign language program should be taken into account.

According to previous studies, Iranian EFL learners' vocabulary learning strategy use is significantly correlated with their vocabulary knowledge (Rastegar Haghighi Shirazi & Yamini, 2011) language proficiency (Abadi & Baradaran, 2013; Jafari & Ajideh, 2012; Karami & Barekat, 2012) and reading comprehension

(Kafipour & Hosseini Naveh, 2011) but not with their listening comprehension (Khoshsaligheh, 2009). Regarding the use of strategies, learners were considered as medium strategy users due to the educational situation.

Furthermore, cognitive, metacognitive and memory strategies are mostly preferred and frequently employed by students. Whereas, social strategies are always the least frequent and less preferred strategy among learners (Kafipour & Hosseini Naveh, 2011; Karami & Barekat, 2012; Khoshsaligheh, 2009), as there is lack of instruction regarding the importance of these strategies in learning a language.

This study investigated the relationship between Iranian learners' critical thinking ability and their vocabulary learning strategies, as well as identifying the types of vocabulary learning strategies that learners employed. Furthermore, proficient and less proficient students were examined by looking into their choices of vocabulary learning strategies. The following research questions were addressed:

- (1) What are the types of vocabulary learning strategy use among Iranian students?
- (2) What are the differences in vocabulary learning strategy use between proficient and less proficient students?
- (3) To what extent learner's vocabulary learning strategies are related to their critical thinking ability?

## METHODOLOGY

### Participants

The study was conducted in a university in Malaysia. A total of 75 Iranian male and female postgraduate students took part in the study. The participants' age ranged from 23 to 33. They were all native Persian speakers with English as their foreign language. They were selected through a snowball sampling approach, as it was difficult to have access to a sufficiently large number of Iranian postgraduate students.

To compare the use of vocabulary learning strategies between two groups of proficiency, the participants were divided into two groups of

students that are deemed as ‘proficient learners’ and ‘less proficient learners’. For the purpose of the current study, only students with IELTS certificate were selected as most Iranian students go through IELTS test as a requirement for admission into universities in Malaysia. There were altogether 32 proficient learners and 43 less proficient learners. Table 1 presents a description of the participants under study.

**Table 1.**  
*Description of the Participants*

		No. of Participants	%
Program of study	Master	40	53
	PhD	35	47
Gender	Male	34	45
	Female	41	55
Level of proficiency	Proficient	32	43
	Less Proficient	43	57

### **Instruments**

In an attempt to elicit data related to the participants’ use of vocabulary learning strategy and their critical thinking ability, two instruments were used to elicit information on the two variables: California Critical Thinking Skills Test (CCTST), Schmitt’s vocabulary learning strategies questionnaire (VLSQ).

#### ***California Critical Thinking Skills Test (CCTST)***

The test is developed from the work of the Delphi definition of critical thinking (Facione, 1990b) that achieves a reliability reading of 0.68 to 0.70 (Facione, 1992). This is a standard test that has been used in a wide range of studies in the field of Education (Fahim & Komijani, 2010; Grosser & Nel, 2013; Rashid & Hashim, 2008).

The test is available in two forms of ‘A’ and ‘B’. In the present study, Form-B was adopted due to its wide use in the academic fields, also it is considered as a valid and reliable scale in Iran for CT assessment (GhorbanDordiNejad & Heydarib, 2012). The original test was in English, but to ensure accurate responses by the subjects, the researcher used the translated version of Form-B,

which is validated by Khamli and Hossein Zadeh (2003), with a reliability coefficient of 0.62. The test consists of 34 multiple-choice questions measuring five cognitive skills: Analysis, inference, evaluation, explanation, and interpretation based on some general background knowledge. The test provides six scores, an overall score on CT cognitive skills and five sub-scores: analysis, inference, evaluation, deductive reasoning, and inductive reasoning (Facione, 1990a).

#### ***Vocabulary Learning Strategies Questionnaire (VLSQ)***

Vocabulary learning strategies questionnaire is based on Schmitt (1997) taxonomy of vocabulary learning strategies and the questionnaire is adopted from Kafipour and Hosseini Naveh (2011), with a reliability coefficient of 0.73. The questionnaire contains two major categories of discovery and consolidation strategies with each consisted of subcategories. It is a 5-point Likert scale questionnaire consisting of 41 items which measures the frequency of strategy use ranging from ‘never’ to ‘always’. The questionnaire is composed of two parts. Part 1 asks for students’ demographic information, and part 2, has 41 questions concerning learners’ vocabulary learning strategies. The demographic section elicited information on subjects’ age, level of education, and IELTS score. Part 2 of the questionnaire contains five parts of vocabulary learning strategies: determination (DET), social (SOC), memory (MEM), cognitive (COG), and metacognitive (MET) strategies.

#### ***Interview***

In the present study, interviews were carried out using semi-structured with open-ended questions. The interviews were carried out individually with 10 students whose preference in using vocabulary learning strategies reflected what the majority of students showed in their questionnaire. For the sake of ensuring the anonymity of the subjects, each interviewee was given a code (A-J). The interviews were meant to find out the reasons for students’ perception of the usefulness of the strat-

egies. In other words, the interview data were used to triangulate learners' opinions and suggestions on the usefulness of vocabulary learning strategies based on the findings of the questionnaire.

### Data Collection Procedure

To achieve the objectives of the study, three instruments were used as a means to collect data i.e. California Critical Thinking Skills Test, Vocabulary Learning Strategies questionnaire, and semi-structured interviews.

Students were asked to sign the consent forms prior to conducting the study, and the researcher ensured that all the participants have IELTS certificate in order to be qualified for the study. The necessary data were collected from Iranian postgraduate students in different faculties of University Malaya. The students were briefed by the researcher prior to data collection in order to have a clear understanding of what is expected of them in completing the test and the questionnaire.

At first, California Critical Thinking Skills Test-Form B was administered. Subjects were given 45 minutes to answer the test as stated in the test manual (Facione, 2013). Then, vocabulary learning strategies questionnaire (VLSQ)

was distributed to identify learners' vocabulary learning strategy use. The questionnaire took 10-15 minutes to be completed.

After a few weeks, the researcher conducted interviews with 10 students that were selected based on their responses to the questionnaire. The interviews were conducted individually with each participant and they were audio-recorded with the participants' permission sought in advance. The purpose of the interview was to further investigate the reasons behind students' choice of certain strategies that they found more useful as indicated by the questionnaire findings. The data collected from the interviews served as the qualitative part of the research.

## FINDINGS AND DISCUSSION

### Types of Strategies Used by Students

In identifying the types of vocabulary learning strategies used by these EFL learners, the descriptive statistics show that the mean of the strategy items range from 2.25 to 3.35 and the standard deviation from 0.95 to 1.20. Table 2 presents the total mean score and standard deviation of learners' vocabulary learning strategy use.

**Table 2.**  
*Frequency of Vocabulary Learning Strategy Use*

Strategies	Mean	SD	Rank	Strategy Use
Determination	3.35	1.05	1	Medium
Metacognitive	3.25	1.12	2	Medium
Memory	2.91	1.05	3	Medium
Cognitive	2.83	1.2	4	Medium
Social	2.25	0.95	5	Low
Overall VLS	2.93	1.12		Medium

As Table 2 shows, determination strategies (M=3.35) were most frequently used by Iranian EFL learners, followed by metacognitive (M=3.25), and memory (M=2.91) strategies. Whereas, social strategies (M=2.25)

were less frequent among learners. In order to validate the results and to uncover the reasons for students' perception of the usefulness of the strategies, interviews were carried out. The summarized findings are presented in Table 3.

**Table 3.**  
**Interview Findings**

Strategies	Findings
Determination	Easy to use and accessible at all times Techniques which are used since high school Useful for proficient learners
Metacognitive	Enjoyable Effective as they maximize exposure Provide the opportunity to review what is previously learnt
Memory	Useful in early stages of learning Not very practical in recalling the words
Cognitive	Time consuming and boring Lack of context Old fashion ways of learning
Social	EFL context of Iran Not a reliable way to learn vocabulary Not effective as they do not promote independent learning
Most Frequent Strategies	Findings
Paying attention to English words when someone is speaking English	Increase input More exposure
Guessing the meaning of words from the context	Trained since high school Improves independent learning Provides engagement
Using English language media	Accessible anywhere at all times Makes learning easier Increase motivation

Based on the findings of the questionnaire, the high frequent use of determination strategies among learners shows that they are easy to use and more accessible to learners like using a dictionary to find the meaning of vocabulary rather than interacting with native speakers to consolidate the meaning of words. As one of the students mentioned *‘using a dictionary provides a definition, synonym/antonyms, example sentences ... even the correct pronunciation of the words which is very effective and efficient* (Participant B).

Moreover, determination strategies assist learners in discovering the meaning of words without relying on other peoples’ help which could be the reason why they are the most frequently used strategies among learners as the subjects of the study also consisted of proficient English learners who are able to learn the language independently.

The use of metacognitive strategies, as the second most frequently used strategy, indicates learners’ ability in evaluating and taking control of their own learning, which is a main aspect of independent learning. According to the interview findings, these strategies are referred to as being enjoyable as they increase motivation; being effective as they maximize exposure to language, and providing the opportunity to re-

view what is previously learnt through word tests and watching movies. As stated by Kafipour and Hosseini Naveh (2011), the frequent use of metacognitive strategies could be due to the large number of electronically available sources of information such as internet which can be accessed easily.

For example, a student said that:

*‘through English language media, I can frequently hear the words...or review what I have learnt which can be very effective...also, I can use the media anywhere at all times* (Participant C).

On the other hand, in the EFL context of Iran where learners lack the necessary exposure to English through unconscious learning, conscious attention can compensate for this deficiency (Ri-azi & Rahimi, 2005). As postgraduate students, the subjects of the study are expected to more or less rely on their own capabilities in learning English and have a conscious overview of their learning process by evaluating and managing their own learning. In other words, being in Malaysia, a country where the medium of instruction at universities is English, they need to take charge of their own learning to achieve their learning objectives.

According to what students reported in their interviews, memory strategies are preferred by beginners, even though they deemed it as being

time consuming and impractical. A good explanation for this could be that these strategies are basic and traditional approaches to language learning which are commonly taught by instructors at institutes and universities. As one of the students mentioned

*'these strategies may help the beginners to memorize different words like drawing a picture for a word or write sentences using that word...but I don't think it is useful for advanced learners (Participant E).*

This is in line with the findings of Amirian and Heshmatifar (2013), who found out that more advanced learners tend to use a wide range of strategies rather than relying on memorization and rote learning. Also, Schmitt (1997) asserts that, proficient learners are more inclined towards complex and meaning-focused strategies as compared to less proficient ones.

However, cognitive strategies were reported to be ineffective as they are time consuming and there is lack of context in which the words are used. According to Schmitt (1997), word lists and flash cards are not favored much in the communicative era, since vocabulary should be presented in a context. As it was stated by one student

*'... flashcards or note books are traditional ways of learning words...maybe repeatedly writing the words or reviewing them help you learn a new word but after a while it will be forgotten as there is no context in which the word is presented (Participant J).*

These strategies might be useful for the initial exposure to a new word but later on, additional information must be provided. For example, at first, words might be listed with their translation but later, more information such as sentences or images should be added to the words to improve learning.

As for social strategies, they were the least frequently used strategies among the participants, which is due to the EFL context in Iran, which does not provide the opportunity for peo

ple to use the language outside the class. Many students lack training in interacting with others as a strategy to learn a language. As it was pointed out by one student

*'I never had the chance to speak or communicate outside the class using English ... but now that I am in Malaysia and I can use the language outside a formal class, I found out that social strategies can be very effective in learning a language (Participant D).*

Since the subjects of this study have taken English courses in the EFL context of Iran, it seems that social strategies are not used much when learning new vocabulary, as compared to the use of a dictionary. As stated by Kafipour (2006), learning English in the EFL context, is considered as an individual learning process where learners resist asking others' help when seeking the meaning of new words. This inactivity, however, may also be linked to Iran's current educational system, in which the classes are teacher oriented, and all the information is provided by the teacher through lecturing. This kind of teaching procedure does not leave any space for group activities or discussions, which is the reason why students are more of passive learners.

### **The Most and the Least Frequent Strategies**

The results of the descriptive analysis revealed that 4 strategies (10%) were used at a high frequency level. The most commonly used strategy among participants was 'paying attention to English words when someone is speaking English' with the mean score of 4.00 and standard deviation of 0.94. As reported by the participants, 29 (70.5%) strategies were in the medium range of use, and 8 (19.5%) strategies being the least commonly used. The least commonly used strategy is 'studying the words with my classmates' (M=1.92, SD=0.77). Table 4 demonstrates the most commonly used vocabulary learning strategies among Iranian students.

**Table 4.**  
*Most and Least Frequently Used Vocabulary Learning Strategies of Iranian EFL Learners*

Least Frequently used Strategies				
Item	Category	Strategies	Mean	SD
9	SOC	Ask my classmates for the meaning	2.37	0.88
33	COG	Use flashcards to record new words	2.24	1.11
8	SOC	Ask the teacher to give me the definition or translation of a word	2.12	0.88
11	SOC	Ask the teacher to check my definition	2.11	0.95
29	MEM	Use physical action when learning a word	2.05	1
13	MEM	Draw a picture of the word to help remember it	2.01	0.88
35	COG	Put English labels on physical objects	1.99	1.07
10	SOC	Study the words with my classmates	1.92	0.77
Most Frequently used Strategies				
Item	Category	Strategies	Mean	SD
41	MET	Pay attention to English words when someone is speaking English	4	0.94
5	DET	Guess the meaning of words from context	3.84	0.82
37	MET	Use English-language media (songs, movies, the internet)	3.77	0.97
7	DET	Use an English-English dictionary	3.57	1.04

As can be seen in Table 4, the most frequently used strategy among Iranian students was ‘paying attention to English words when someone is speaking English’ (MET) with the mean of 4.00, followed by ‘guessing the meaning of words from context’ (DET,  $M=3.84$ ) and ‘using English-language media (songs, movies, the internet)’ (MET,  $M=3.77$ ). On the other hand, ‘study the words with my classmates’ was the least frequent strategy among Iranian students (SOC,  $M=1.92$ ). Moreover, among 5 strategies in the social category, 4 of them (Ask my classmates for the meaning; Ask the teacher to give me the definition or translation of a word; Ask the teacher to check my definition; Study the word with my classmates) were among the least frequently used strategies, which shows that Iranian EFL learners are unfamiliar with social strategies as a means to learn new vocabulary.

According to what students reported in their interviews, paying attention to English words when someone is speaking provides more exposure to language since paying attention improves listening and correct pronunciations of the words, and it also provides the opportunity to correct one’s mistakes and learn how to use the language correctly. One possible explanation could be that when these participants are located in an ESL context such as in Malaysia, learners have more

exposure to language which enables them to consciously manipulate the language. On the other hand, the findings showed that guessing the meaning of words from the context improves learner autonomy since students rely on their own knowledge without referring to a dictionary or asking the teacher for the definition. In other words, learners are engaged in the process of learning when they pay attention to the context as they try to infer the meaning of words by relying on their background knowledge.

Furthermore, the exposure to English language media facilitates learning by increasing motivation in learners, which leads to internalization of more input. In other words, in an environment where there is not much exposure to the foreign language, the use of English language media can compensate for the lack of L2 input.

### Frequency of Strategy Use

According to Oxford (1990) the frequency of learners’ strategy use is classified as high (mean of 3.5 and over), medium (mean ranges between 2.5-3.5), and low (mean of 2.5 and under). Findings of the study also suggested that Iranian EFL learners are moderate strategy users, which is consistent with the findings of other studies conducted (Aliakbari & Hayatzadeh, 2008; Hamzah et al., 2009; Jafari & Ajideh, 2012; Kafipour &



Hosseini Naveh, 2011; Rahimi, Riazi, & Saif, 2008) in Iran. As stated by Fan (2003) little attention is given to vocabulary in the Asian university curriculum. This situation is also apparent in Iran, Turkey and North Cyprus where the emphasis is on developing the four language skills (Kalajahi & Pourshahian, 2012). Therefore, learners lack the adequate knowledge of vocabulary. Furthermore, the same results can be seen among other Asian EFL/ESL learners (Alsadik, 2014, in Iraq; Asgari & Mustapha, 2011, in Malaysia). In both studies the researchers argued that students' medium strategy use was due to their unfamiliarity with various vocabulary learning strategies.

### Types of Strategies Used among Proficient and Less Proficient Students

To find the difference in vocabulary learning strategy use between groups of differing proficiency, both descriptive statistics and an independent sample t-test was run. The data (Table 5) shows that the use of strategies does not vary much among the two groups.

**Table 5.**  
*Descriptive Statistics for the Strategy Use Among Proficient and Less Proficient Group*

Less proficient group			
Strategies	Mean	SD	Rank
Metacognitive	3.38	1.04	1
Determination	3.20	1.05	2
Cognitive	2.99	1.15	3
Memory	2.81	1.03	4
Social	2.31	0.89	5
Overall VLS use	2.92	1.11	
Proficient group			
Strategies	Mean	SD	Rank
Determination	3.54	1.02	1
Metacognitive	3.08	1.21	2
Memory	3.05	1.06	3
Cognitive	2.62	1.24	4
Social	2.16	1.01	5
Overall VLS use	2.96	1.21	

As Table 5 reveals, proficient learners used vocabulary learning strategies more frequently

than the other group (M= 2.96), with determination, and memory strategies having higher mean scores as compared to the proficient group. The highest mean of strategies for the proficient group belonged to determination (M=3.54), followed by metacognitive (M=3.08) and memory strategies (M=3.05) while for the less proficient group, the highest mean belongs to metacognitive (M=3.38), determination (M=3.2) and cognitive (M=2.99) strategies, respectively. The least frequently used strategies among the two groups are the social strategies, with a mean of 2.31, and 2.16 for the less proficient and the proficient group, respectively. This finding concurred with the results of Karami and Barekat (2012) who found out that Iranian EFL learners are not trained to interact with others as a strategy to learn a language. This, however, could be due to the educational curriculum, in which collaborative learning is not promoted among learners.

As mentioned before, determination strategies assist learners in discovering the meaning of words without relying on other peoples' help, which could be the reason why they are the most frequently used strategies among the proficient group. Moreover, from the researchers' observation, proficient learners used monolingual dictionaries (English-English dictionary) more frequently than other strategies. According to Schmitt (1997) the use of determination strategies made learners rely on their own knowledge of the language, contextual clues or the reference material to find the meaning of words that are encountered for the first time. This, however, improves learners' independence in dealing with the language, which is in line with the findings of previous studies (Amirian & Heshmatifar, 2013; Asgari & Mustapha, 2011; Hamzah et al., 2009). In a study conducted by Asgari and Mustapha (2011) the researchers concluded that learners' frequent use of monolingual dictionaries is linked to the language curriculum in Malaysia which promotes independent learning. On the other hand, in the study conducted by Amirian and Heshmatifar

(2013) the subjects claimed that words are easier to learn by the use of monolingual dictionaries as they provide comprehensive explanation or illustration of the lexical items.

While the reason for the frequent use of metacognitive strategies among less proficient learners could be that the learners are trying to take control of their own learning by maximizing exposure to language through the use of English language media, and increasing input by paying attention to English words when someone is speaking English, as this is the most frequently used strategy among less pro-

ficient learners. Based on the interview findings, metacognitive strategies such as the 'use of English language media' were reported to be effective as they provided the opportunity to constantly review what is previously learned, and this leads to maximizing the exposure to language.

### Differences in Strategy Use between Proficient and Less Proficient Students

To check whether the total strategy use among two groups of proficiency truly varied, an independent samples t-test was run (Table 6).

**Table 6.**

*Differences in VLS Use among the Proficient and Less Proficient Learners*

Vocabulary Learning Strategies		Mean	P	N
Determination	Less Proficient	3.20	.00*	43
	Proficient	3.54		32
Social	Less Proficient	2.31	.27	43
	Proficient	2.16		32
Memory	Less Proficient	2.81	.04*	43
	Proficient	3.05		32
Cognitive	Less Proficient	2.99	.02*	43
	Proficient	2.62		32
Metacognitive	Less Proficient	3.38	.03*	43
	Proficient	3.08		32
Overall VLS Use	Less Proficient	2.92	.64	43
	Proficient	2.96		32

The results of the independent samples t-test (Table 6) showed no significant difference between learners' use of vocabulary learning strategies in general with respect to their language proficiency ( $p = .64$ ,  $p > .05$ ). However, this difference is significant in the use of determination ( $p = .00$ ), memory ( $p = .04$ ), cognitive ( $p = .02$ ) and metacognitive ( $p = .03$ ) strategies except for the social ones ( $p = .27$ ) in two different proficiency levels. Therefore, it can be concluded that Iranian students, in two different language proficiency groups, would employ different strategies when learning English vocabulary. In other words, learners' level of proficiency does affect their choices of strategies in learning a language. Moreover, learners relied on the strategies that are less dependent on the help of a teacher or

a classmate, and which are easily accessed.

In relation to social strategies, although there was no significant difference in learners' use of these strategies, less proficient students tend to employ them more frequently. It is suggested that EFL students' lack of familiarity with socializing impact their learning of language.

### Vocabulary Learning Strategies and Critical Thinking Ability

To investigate this relationship, the statistical technique of Pearson-Moment correlation was used. This technique allows one to look at the two variables and evaluate the strength and direction of their relationship or association with each other (Dörnyei, 2007). The analysis of the data through Pearson moment correlation revealed the results in Table 7.

**Table 7.**  
**Correlation Coefficient of Critical Thinking and Vocabulary Learning Strategy**

		Correlations	
		CT	Overall VLS
CT	Pearson Correlation	1	.233*
	Sig. (2-tailed)		.045
	N	75	75
Overall VLS	Pearson Correlation	.233*	1
	Sig. (2-tailed)	.045	
	N	75	75

Note: \*Correlation is significant at the 0.05 level (2-tailed).

The results from Table 7 revealed a statistically significant relationship between learners' scores on critical thinking skills test and their use of vocabulary learning strategies ( $r(75) = 0.233$ ,  $p < .05$ ). This indicates that learners are to some extent exposed to elements of critical thinking and know how to incorporate it into their academic work. As Moon (2007) stated, university students would become critical thinkers if critical thinking is clearly expressed in higher education. Critical thinking is considered as a factor contributing to the success of language learners since learning a foreign/second language words, learners can enhance their language performance by applying critical thinking into their process of language learning. The results of this study are congruent with the findings of a few studies (e.g., Fahim, Bagherkazemi, & Alemi, 2010; Fahim & Komijani, 2010; Hosseini, Bakhshipour Khodaei, Sarfallah, & Dolatabadi, 2012; Nikoopour et al., 2011). In these studies, the results showed a significant relationship between critical thinking ability of students and different aspects of language learning. Nikoopour et al. (2011), investigated the relationship between critical thinking and the use of direct and indirect language learning strategies. The results revealed a statistically significant relationship between critical thinking and indirect language learning strategies. They found that the use of language learn-

ing strategies can improve students' way of thinking, thus, critical thinking should be incorporated into language learning textbooks. In the study by Fahim and Komijani (2010), the results indicated that learners' CT was found to be positively correlated with their use of determination, memory, cognitive, and metacognitive strategies. This shows that critical thinkers act more independently in decision-making and problem solving, and they more or less rely on their own capabilities. In other words, critical thinkers are more creative in generating new ideas for solving problems and making use of these ideas in relevant tasks.

The findings of this study would be further used to explain that when teaching is mostly based on traditional teaching approach, students are not trained to be critical thinkers. In such a system, the teacher's task is primarily to cover all the instructional materials instead of leading the students to reflect on what they are learning. Teachers are considered to be the source of all the necessary information who train passive individuals. Moreover, students' ideas are being ignored and they are not given a chance to express themselves (Fahim & Ahmadian, 2012), thus, it will be fair to assume that it is difficult for such students to acquire the necessary thinking skills. Nevertheless, the subjects of this study have been studying in Malaysia where the education system ensures the implementation of thinking skills into the educational curricula.

## CONCLUSION AND IMPLICATIONS

This study investigated the relationship between Iranian students' critical thinking ability and vocabulary learning strategy use, as well as examining proficient and less proficient students' use of vocabulary learning strategies. In line with the obtained results, teaching the elements of critical thinking is considered important in modern education (Ku, 2009), as it provides learners with the ability to deal efficiently and successfully with the fast paced changes of the new technological world. To cultivate such competency, learners must go beyond focusing on textbook knowledge

and develop the necessary cognitive skills to make valued judgments, rational arguments, and evaluations. Moreover, critical thinking is not only important for students to succeed in school or higher education, but it is also considered essential in the society where rational decision making is related to everyday life.

Concerning language education in the EFL context, learners need to be prepared to face the world outside their own societies. Past research indicates that students need to acquire the necessary thinking skills (Rezaei, Derakhshan, & Bagherkazemi, 2011). Similarly, in order to be capable of thinking like the individuals of the target community, there should be exposure to teaching and learning of critical thinking during the process of learning L2. In fact, this kind of language teaching and learning environment creates opportunities for learners to develop their critical thinking ability. Once critical thinking is integrated into the ongoing education process, learners will be more successful in thinking critically in the second language. Thus, it seems that language learning curricula should be reorganized and learners must be challenged to employ critical thinking and problem solving skills in real situations outside the classroom context.

Pedagogically, this study shows the importance of strategies in learning vocabulary. Language instructors should provide learners with the necessary strategies and assist them in achieving their language learning objectives. Teachers should train students in choosing the appropriate strategies that best suit their language needs. In addition, teachers should design useful activities for students to improve their vocabulary. Moreover, based on the results, learners' lack of interest in using social strategies highlighted the need for close attention by syllabus designers, since one of the important features of a communicative language class is for learners to use the language in interacting with others rather than relying merely on books to learn the language. Thus, these activities that encourage group work and collaborative learning should be incorporated to induce the use of social strategies.

Furthermore, the results indicated a significant relationship between critical thinking and vocabulary learning strategy use. In this regard, traditional teaching methods need to be replaced by the learner-centered approaches in order to develop students' critical thinking ability. In addition, curriculum designers are recommended to constantly review the educational curricula to make sure that different aspects of critical thinking are incorporated into the language instruction programs. This is to ensure that students are able to evaluate and question their ways of learning a language and choose the best techniques that fit their language learning objectives.

Based on the obtained results and the implications of the study, numerous suggestions can be made for further research. This study was conducted on a small scale of participants, thus more respondents and a monitoring of the homogeneity of the participants regarding their field of study and level of education might reveal different results in relation to the type of strategies they use and their ability in thinking critically. In addition, the same study can also be conducted to compare two groups of students from two different countries, as cultural background affects the way people think and deal with the process of learning a language. For example, English is learnt differently in ESL as compared to an EFL context. In order to extend the domain of this research, instruments other than the ones used in this study or other techniques of gathering data can be used to see if similar results are obtained. Apart from the use of a questionnaire to examine the type of strategies students employ, the use of vocabulary learning activities for data collection might provide more insight into how learners use these strategies when encountered with unknown words.

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