

THE RELATIONSHIP BETWEEN CRITICAL THINKING ABILITY
AND VOCABULARY LEARNING STRATEGY AMONG EFL LEARNERS

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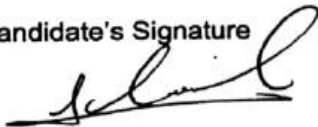
The Relationship between Critical Thinking Ability and Vocabulary Learning Strategy among EFL Learners

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ABSTRACT

As an approach to learning, critical thinking is considered important in the field of education due to its possible effects on language learning (Villavicencio, 2011). Thus, the reasons behind the success and failure of EFL learners have provoked researchers to examine different aspects of the process. In language classrooms, the highest priority is assigned to developing the four language skills, with little attention to developing learners' ability to think critically. Notwithstanding the fact that 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.

The present study aims at investigating the relationship between learners' critical thinking ability and their vocabulary learning strategies, as well as identifying the types of vocabulary learning strategies that learners employ. Furthermore, proficient and less proficient students will be compared based on their critical thinking score and types of strategy use. The subjects were 66 Iranian postgraduate students studying in University Malaya that were selected through a snowball sampling method. The present research is a mixed-method study and the necessary data were collected using Schmitt's vocabulary learning strategies questionnaire (VLSQ) to identify the types of strategies used by learners; California critical thinking skills test (CCTST) to determine learners' critical thinking ability; and semi-structured interviews to validate learners' choices of strategies. To analyze the data, descriptive statistics were used to identify the types of vocabulary learning strategies used by Iranian students. Independent sample t-test was run to investigate the possible significant difference of critical thinking score and vocabulary learning strategy use, between two groups of proficient and less proficient learners.

Furthermore, Pearson moment correlation was performed to examine the relationship between

critical thinking ability and vocabulary learning strategies. The findings revealed that determination strategies were most frequently used followed by metacognitive and memory strategies, while social strategies were found to be the least frequent among the students. Based on the overall mean score of vocabulary learning strategy use, the subjects were reported to be medium strategy users. In addition, the results of the independent sample t-test indicated a significant difference among two groups of learners in their use of cognitive strategies. On the other hand, there was found to be no significant difference between learners' critical thinking score with respect to their level of language proficiency. The results of the Pearson moment correlation demonstrated that there was no statistically significant relationship between learners' critical thinking ability and vocabulary learning strategies.

ABSTRAK

Sebagai pendekatan kepada pembelajaran, pemikiran kritikal dianggap penting dalam bidang pendidikan kerana disebabkan ia berkemungkinan memberi kesan terhadap pembelajaran bahasa (Villavicencio, 2011). Oleh itu, disebabkan ia berkemungkinan berhubung kait dengan kejayaan dan kegagalan pelajar, ia menarik minat penyelidik untuk mengkaji pelbagai aspek tentang pemikiran kritikal. Di dalam kelas bahasa, keutamaan yang paling tinggi biasanya diberikan kepada latihan empat kemahiran bahasa, dan kurang perhatian untuk membangunkan keupayaan pelajar untuk berfikir secara kritis. Walaubagaimana pun, sebenarnya keupayaan pemikiran kritikal meningkatkan keupayaan pelajar dalam pembelajaran bahasa, dan ia membolehkan pelajar mengambil keputusan sendiri semasa berfikir mengenai strategi dan teknik-teknik yang mereka perlu ambil dalam pembelajaran bahasa.

Kajian ini bertujuan untuk mengkaji hubungan antara keupayaan pemikiran kritikal pelajar dan strategi pembelajaran perbendaharaan kata mereka, serta mengenal pasti jenis-jenis strategi pembelajaran perbendaharaan kata yang diambil. Tambahan pula, pelajar-pelajar yang mahir dan kurang mahir akan dibandingkan berdasarkan skor pemikiran kritikal dan penggunaan jenis strategi perbendaharaan kata mereka. Sampel terdiri daripada 66 pelajar siswazah Iran yang belajar di Universiti Malaya yang telah dipilih melalui kaedah persampelan bola salji. Kajian ini adalah satu kajian bercampur-kaedah dan data yang diperlukan dikumpulkan menggunakan soal selidik strategi pembelajaran perbendaharaan kata Schmitt (VLSQ) untuk mengenal pasti jenis-jenis strategi yang digunakan oleh pelajar; sementara ujian kemahiran pemikiran kritikal California (CCTST) pula digunakan untuk menentukan keupayaan pemikiran kritikal pelajar. Temubual separa berstruktur turut diadakan untuk mengesahkan pilihan strategi pembelajaran perbendaharaan kata pelajar. Untuk menganalisis data, statistik deskriptif telah digunakan untuk

mengenal pasti jenis-jenis strategi pembelajaran perbendaharaan kata yang digunakan oleh pelajar Iran. Ujian-t Sampel bebas telah dijalankan untuk menyiasat perbezaan skor pemikiran kritis dan perbendaharaan kata penggunaan strategi pembelajaran di antara dua kumpulan pelajar mahir dan kurang mahir.

Tambahan pula, korelasi Pearson telah dijalankan untuk melihat hubungan di antara keupayaan pemikiran kritikal dan strategi pembelajaran perbendaharaan kata. Dapatan kajian menunjukkan bahawa strategi penentuan telah paling kerap yang digunakan, dan ia diikuti dengan strategi metakognitif dan memori. Sementara strategi sosial didapati yang paling kurang kerap digunakan di kalangan pelajar. Berdasarkan skor min keseluruhan penggunaan strategi pembelajaran perbendaharaan kata, sampel dilaporkan sebagai pengguna strategi sederhana.

Tambahan pula, keputusan ujian-t sampel bebas menunjukkan terdapat perbezaan yang signifikan di antara dua kumpulan pelajar dalam penggunaan strategi kognitif. Sebaliknya, didapati tiada perbezaan yang signifikan antara skor pemikiran kritikal pelajar berkenaan dengan tahap penguasaan bahasa. Keputusan korelasi Pearson menunjukkan bahawa tidak terdapat hubungan statistik yang signifikan antara kebolehan pemikiran kritikal dan strategi pembelajaran perbendaharaan kata pelajar.

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LIST OF SYMBOLS AND ABBREVIATIONS

CCTST	California Critical Thinking Skills Test
COG	Cognitive
CT	Critical Thinking
DET	Determination
EFL	English as a Foreign Language
ESL	English as a Second Language
IELTS	International English Language Testing System
MEM	Memory
MET	Metacognitive
SOC	Social
TOEFL	Test of English as a Foreign Language
VLS	Vocabulary Learning Strategies
VLSQ	Vocabulary Learning Strategies Questionnaire

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CHAPTER I

INTRODUCTION

1.1 Background of the Study

Learning a second or foreign language requires the use of the four language skills for an effective communication. On the other hand, there is a growing interest on the role of vocabulary learning, which indicates its basic role in acquiring a language, since vocabulary is considered as the building blocks without which people are unable to communicate their message or intentions (Khabiri & Pakzad, 2012). Thus, some researchers (Hatch & Brown, 1995, as cited in Khabiri & Pakzad, 2012) have emphasized the necessity for some principled approach to teaching and learning of vocabulary. As a result, different approaches and techniques have been implemented in language classrooms, as strategies enhance language learning. Vocabulary learning strategies are part of language learning strategies that are considered as a subcategory of learning strategies in general (Nation, 2001). As for teaching vocabulary, it is not only teaching single words, but the focus should be on the strategies that learners' can equip themselves with in order to learn the necessary vocabulary (Hulstijn, 1993). 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 may be one of the factors that influence vocabulary learning strategies.

Nowadays, new approaches are being proposed to fulfill the educational objectives and learning processes. As an approach to learning, critical thinking is considered important in the field of education which gradually receives more attention from researchers due to its possible effects on language learning (Villavicencio, 2011). In most developed countries, inculcating

critical thinking is considered as one of the goals of education (Nowroozi & Bakhtiari, 2005). For example, in the developing countries such as Iran, Education experts express their concern about students' inability in thinking critically (Khalili, Babamohammady, & Hajiaghajani, 2004). They believe that the primary goal of education should be fostering individuals with the ability to think critically, in other words, a 'mind probing' individual (Shabani, 2004). In the same way, Weiler (2005) asserts the importance of critical thinking in the process of learning and cognitive development.

The role of critical thinking is emphasized in the domain of language learning, where the reasons behind the success and failure of EFL learners have provoked researchers to examine different aspects of the process. Thus, 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. However, in most cases, at the beginning stages of learning, due to students' unfamiliarity with the strategies and approaches to language learning they are mostly dependent on their teacher and try to avoid applying their own thoughts.

A review of the educational situation in Iran focusing on foreign language education and the role of critical thinking in the system is provided in the next section, as the subjects of the current study are Iranian students studying in University of Malaya, Malaysia.

1.1.1 Educational Situation in Iran

Iran's educational system was modeled on French education system in the 19th century. The first modern school in Iran was built about 150 years ago, thus modern education is relatively young. During Pahlavi Dynasty (1925-1979), modernization is sustained as the ministry of education developed a systematic instructional program with refined policy statements and applied the program in public schools and some higher education centers. Shortly after the Islamic Revolution in 1979, Islamic values were implemented in the educational system which led to Islamisation of books and enforcement of Islamic laws inside and outside the educational environment (Secretariat of the Higher Council of Education, 2006). Despite the fact that religious principles were implemented in every aspect of education, the need for a foreign language still existed as it was considered a means for educational advancement in the country.

1.1.1.1 Foreign Language Education in Iran

Choosing a foreign language to be instructed in the country was influenced by the government policies which were often determined by economic, social, political and educational factors. For instance, during the Pahlavi Dynasty (1925-1979), due to close political, military and social relationship between Iran and US, English became an essential means of communication between the two countries. Therefore, teaching English was considered a social need and proficiency in the language became an important requirement for many jobs (Farhady, Hezaveh, & Hedayati, 2010).

As language matters were politicized after the Revolution, English was considered a danger to Persian language and culture (Farhady et al., 2010). While most countries supported bilingual and multilingual educational systems, Iran tried to maintain national unity and identity

among youngsters by endorsing a monolingual system. Additionally, as a result of the growing ties between Iran and some European countries, the educational policy makers developed a program to encourage the learning and teaching of five other languages such as Russian, French, Spanish, German and Italian. Nonetheless, insufficient number of students and teachers for these languages resulted in the dominance of English as the main foreign language to be taught at school. Nowadays, teaching English at public schools has reached up to 4 hours a week and is given the same number of credit units as other major subjects in the curriculum. At university level, teaching English is limited to 3 credit units which is required for all university majors. Despite this general requirement, students are allowed to sit for another 4 credit units of ESP courses that are presented based on students' needs. English courses at university are translation-oriented which allows students in different majors to improve their reading comprehension of different materials written in English (Secretariat of the Higher Council of Education, 2006). On the other hand, the expansion of private institutes has promoted learning and teaching of English throughout the country. Although learning a foreign language is of significance due to its important role in educational advancement, having a system in which individuals are able to think critically is also considered as an advancement in the present society.

1.1.1.2 The Role of Critical Thinking in the Educational System

One of the important attributes of the present societies is the growth and advancement of the educational system. In developing countries such as Iran, particularly in recent decades, this has turned into a vital and sensitive issue. The most effective and perceptible character in the system, is the 'thinking' element. Thus, critical thinking, as one of the new models in the educational system, is a required skill in improving students' thinking ability. This helps individuals to

deeply reflect upon issues and criticize the system through true understanding of the existing issues.

In a developed educational setting, individuals should explore freely and more attentively without force. The main reason for education should be turning out individuals into thoughtful people and the final outcome of education must be the reflective mind.

In spite of what is being mentioned above, unfortunately, Iran educational system, not just overlook such mission, but also heads into different direction. System's emphasis on transmitting knowledge is restricted to memorization of materials that is due to curriculum planning and educational assessment (Hashemi, Naderi, Shariatmadari, Naraghi, & Mehrabi, 2010). In other words, the focus of education is on end of the year final assessment rather than students' process of learning during a semester.

In general, instruction is centered on the content of the textbooks, taught materials are learnt through rote memorization, and students are expected to gain a great deal of factual knowledge. Many teachers spend most of their teaching time on talking and asking questions that require abstract meanings and only a few minutes is allocated to questions that need thoughtful answers. Thus, learners will be directed to imitation and passive approval of the taught materials, without having the chance of reflecting upon the questions brought up in class.

The method of instruction at schools is based on transferring the materials from the teacher to the students. Essentially, there is no emphasis on improving critical thinking skills of students such as criticizing the educational content, creativity in finding new solutions, and analysis of the data. Thus, students are graduated lacking the ability to think critically.

1.2 Problem Statement

Although developing students' critical thinking is of value to educators, in the developing countries including Iran, there seem to be lack of emphasis on developing the necessary critical thinking skills (Khalili et al., 2004). For example, the Iranian educational system has been said to emphasize filling the mind of learners with information instead of giving priority to educating thoughtful individuals (Hashemi et al., 2010). However, despite the emphasis on nurturing students who are able to think critically, it is not yet fully incorporated into the educational curriculum.

Moreover, according to Nugent and Vitale (2008, as cited in Afshar & Movassagh, 2014), critical thinking is a cognitive strategy by which you reflect on and analyze your thoughts, actions and decisions (p. 2). In other words, it is defined as a self-regulatory judgment (Facione, 1990) that leads the individuals towards questioning and evaluating their process of learning. Notwithstanding the fact that the success of learners in this process requires them to question and decide over the methods and techniques that lead them to achieve the language learning objectives. As shown in figure 1.1, the application of critical thinking in language learning will allow the learner to analyze, evaluate and question their thoughts and decisions which lead to better executions of various related strategies.

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.

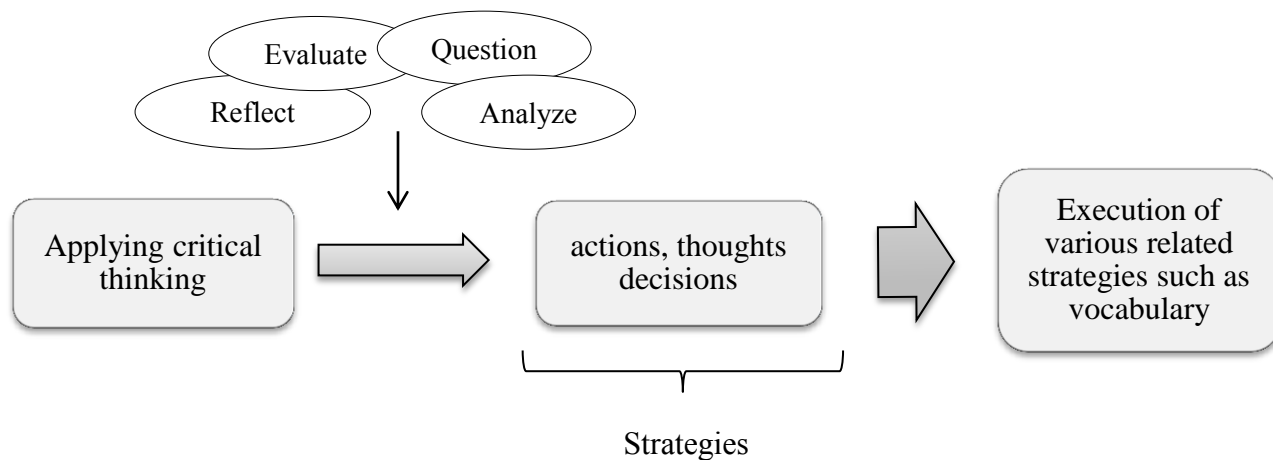


Figure 1.1: Critical Thinking and Language Learning

In addition, despite the emphasis on acquiring the four language skills to reach higher levels of language proficiency, another important aspect is learners' knowledge of vocabulary as it forms the major part of the meaning in any language (Hamzah, Kafipour, & Abdullah, 2009) and it's an essential means of communicating with others. Most difficulties in comprehension and production of a target language is 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, as it is considered important to language use. However, the EFL context of Iran provides a situation in which the language cannot be actively used as there is lack of exposure to the language, thus, learners' lexical knowledge will be developed passively. Notwithstanding the fact, that Iranian EFL students are known as passive learners as they do not participate actively in learning activities.

This inactivity, however, is due to Iran's educational system in which the classes are teacher oriented, and all the information is provided by the teacher through lecturing (Zohrabi, Torabi, & Baybourdiani, 2012). Moreover, the use of English language media which can compensate for the lack of L2 input is also inadequate. On the other hand, inefficient instruction regarding vocabulary learning and lack of elicitation exercises which will lead to the use of words in producing language, can be observed in the language classes (Hazrat & Hessamy, 2013). Even though lexical knowledge is important in language learning process, there is a lack of defined syllabus for EFL learners regarding their use of vocabulary learning strategies (Jafari & Ajideh, 2012). In this case, it seems that it is vital for learners to be trained to use the necessary strategies to learn vocabulary since lack of lexical knowledge will lead to difficulty in language learning.

1.3 Research Objectives

This study aims at investigating the relationship between learners' critical thinking ability and their vocabulary learning strategies, as well as identifying the types of vocabulary learning strategies that learners employ. Furthermore, proficient and less proficient EFL students will be examined by looking into their choices of vocabulary learning strategies and their thinking ability.

1.4 Research Questions

The study will address the following research questions:

- 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 EFL students?

- 3) What is the difference in terms of critical thinking scores between proficient and less proficient students?
- 4) To what extent are the learner's vocabulary learning strategies related to their critical thinking ability?

1.5 Null Hypotheses

To answer the research questions, the following null hypothesis is formulated:

H0: There is no relationship between learner's critical thinking ability and their vocabulary learning strategy.

1.6 Significance of the Study

This study is important and beneficial for both learners and language instructors since it highlights the use of vocabulary learning strategies of learners, and sheds light on the importance of vocabulary learning in the process of learning a language. The findings of the study can assist language instructors to improve their vocabulary teaching and to change any misconceptions regarding vocabulary learning of the learners. Moreover, learners' awareness of the appropriate strategies can improve their proficiency and lexical competence. Identifying learners' vocabulary learning strategies will help them overcome the difficulties they might come across in learning lexical items and also develop those strategies to become more motivated and independent in learning a language. As a result, they can improve their proficiency and lexical competence once they are aware of the learning strategies.

Simultaneously, investigating learners' vocabulary learning strategies in relation to their thinking ability helps in recognizing different aspects about their language learning as critical thinking influences students' decision and choices of learning strategies in the process of learning. Hence, investigating these two aspects i.e. critical thinking ability and vocabulary learning strategies of learners will provide help for syllabus designers.

CHAPTER II

REVIEW OF THE LITERATURE

The present chapter is dedicated to reviewing the existing literature to present an overview of major theoretical contributions and significant studies related to the study. This chapter comprises of six major parts, namely: (1) historical development of critical thinking (2) critical thinking assessment, (3) critical thinking in language learning (4) language learning strategies (5) vocabulary learning strategies, and (6) classification of vocabulary learning strategies.

2.1 Historical Development of Critical Thinking

The roots of critical thinking can be traced back to the teaching practice of Socrates, the Greek philosopher, who started the foundation of critical thinking over 2000 years ago (Fisher, 2011). He realized that dealing with the complicated issues in the world demands an intellectually-sophisticated mind. However, evidence seeking, logical analysis of assumptions, and finding out implications of what is said and what is done (Paul, Elder, & Bartell, 1997) are some of the basic premises he sought to develop in individuals in order to broaden their critical perspectives. His technique of questioning known as “Socratic Questioning” draws upon a number of thought-provoking questions to reveal the truth hidden under the guise of ambiguity, sophistry and irrationality (Carroll, 2004). He believed that the idiosyncrasy lies in instructor’s critical examination of a subject matter which helps learners read between the lines of a given problem and find the truth. Indeed, the directive, invisible driving force behind the questions makes learners probe the issue from fresh perspectives and come into an in-depth understanding of what it entails (Taylor & MacKenney, 2008). Regarding the teaching of critical thinking, the Socratic Method is one of the recognized strategies. Although committing the “thinking” crime brought

about a tragic death to Socrates, his practice was followed by his successors Plato, Aristotle and the Greek skeptics. They also placed emphasis on the fact that events might take on a quite different appearance if thoroughly examined.

Plato followed and documented much of Socrates' work. He very much appreciated Socrates when he fought against the Greece authorities for promoting independent thinking among youngsters (Carroll, 2004). Moreover, Aristotle, as one of the successors of Socrates, introduced the principles of reasoning for thinking critically upon issues and drawing inferences. According to him, the basic methods of reasoning are sets of propositions that together present a new conclusion. He also indicated that Science is the outcome of more complicated systems of reasoning. Therefore, out of this ancient Greek practice, appeared the need, to have an understanding of more profound realities, to think logically, and to search for the outcomes extensively and deeply, as reaching beyond the surface depends on a comprehensive and well-reasoned thinking that is based on solid justifications, and being responsive to oppositions. Deriving inspiration from their Greek ancestors, many bright scholars (Thomas Aquinas, Thomas Moore, Francis Bacon, Rene Descartes, Thomas Hobbes and John Locke) have stepped into the path of critical thinking during the course of history.

In the middle Ages, Thomas Aquinas incorporated the practice of systematic critical thinking in his teachings and writings. He examined his thinking to make sure that it was definitely a critical thought, by systematically stating, considering and answering all criticism of his ideas that he identified as being necessary to the development of his thinking (Carroll, 2004). Besides from increasing our understanding of the possible power of thinking, Aquinas also heightened our awareness of the need for thinking to be systematically developed.

During the Renaissance (15th and 16th Centuries), there were many scholars of critical thinking, especially in Europe, who associated disciplines such as law, art, religion and etc. with everyday living, and discovered the need for critical thinking and analysis in every aspect of human life (Paul, Elder, & Bartell, 1997). Colet, Erasmus, and Moore were among the scholars who pursued the practices of the ancients. Furthermore, in the late 16th century, Francis Bacon claimed that natural tendency of humankind gets him to conclusions which necessarily are not dependent on reality. In his book “*The Advancement of Learning*”, he stated that information need to be refined and collected empirically (Paul et al., 1997). He is also, acknowledged in philosophy for the use of inductive reasoning, a procedure during which information is collected from real observation and practices that could withstand rigorous assessments which results in a theory.

Fifty years later in France, Rene Descartes, in his philosophical writings, placed a high priority on intellect and casted doubt on sensory experiences as valid sources of acquiring knowledge (Descartes, 1984). He constantly challenged what is taken for granted by others and called into question the knowledge accumulated in books. He also developed the *principle of systematic doubt*, as a method of critical thinking. To him, doubt was the only intellectual foundation, based on which we are able to gain understanding of how the world functions (Paul et al., 1997). In other words, he believed a critical, doubtful outlook at every single piece of universe in every moment of life could eventually reveal the truth of our existence. He is known as the ‘father of philosophy’ and his works continue to be studied in the present century. Throughout the same period, Sir Thomas Moore introduced a new model of social order, known as *Utopia*, wherein every single aspect of the universe was dependent on analysis, and the established communities required extreme evaluation and analysis.

In the course of the Italian Renaissance, Niccolo Machiavelli, took the lead with his book titled “*The Prince*”, in which he critically analyzed the political situation of his time, and provided the basis of modern democratic societies. He also managed to increase the public awareness concerning the need to understand the actual plans of the authorities along with the conflicts and discrepancies of the political environment (Paul et al., 1997). The critical thinking practices of Renaissance and post-Renaissance intellectuals led the way for the advent of science and provided the basis for democracy, human rights, and freedom of reasoning.

In the 17th and 18th century, Thomas Hobbes and John Locke regarded critical thinking as a means that allows individuals to further experience new methods for learning (Paul et al., 1997). Hobbes took on a naturalistic view of the universe in which everything was to be clarified by evidence and thinking. On the other hand, Locke considered logical thinking as a driving force in the analysis of everyday life and thought. Moreover, Robert Boyle was considered as one of the well-known figures of that time, because of his work entitled “*Sceptical Chymist*” in which he criticized the chemical theory that was proposed before him (Paul & Elder, 2013). Meanwhile, Isaac Newton introduced a scientific method of thinking, his writing “*Principia*”, which criticized the conventionally recognized worldview.

In the 19th century, critical thinking was further extended into the social lives of individuals by Comte and Spencer. It was applied to the issues of capitalism by Karl Marx; to history of human civilization and the foundation of biological life by Darwin; and to the unconscious mind as presented in the works of Freud. Furthermore, the practice of critical thinking in cultures and language led to the emergence of Anthropology and Linguistics, respectively.

In the 20th century, critical thinking literature was specifically enriched by contributions of John Dewey, the American philosopher, psychologist and educator. Drawing a distinction between critical and reflective thinking, he equates the former with “judgments made during problem solving activities” (Geertsen, 2003). On the other hand, Benjamin Bloom also contributed much to higher-level thinking literature by his famous taxonomy of thinking processes. He demonstrates how our psychic ability reaches its full potential in a step-wise fashion: pieces of information are recalled, comprehended, applied in novel circumstances, analyzed, synthesized to form new patterns, and finally evaluated. These stages reveal much regarding how knowledge can gradually become deep-rooted by moving away from low-level forms of thinking (Kratwohl, 2002). In the light of Bloom's taxonomy, Geertsen (2003) settled a debate over what exactly differentiates critical and reflective thought. He elaborated on twelve higher-order thinking skills, of which the first six involve critical thinking and “...seek to corroborate, firmly establish, or strengthen...” (p. 11), and the next six embrace reflective thinking and “...seek to extend, enlarge, or explore...” (p. 11). In other words, the former stands within the constraints of intellectual standards (Geertsen, 2003), while the latter moves beyond them to come up with unexpected, spontaneous, and creative thought.

The idea of critical thinking has developed through centuries, from the time of Socrates to the present day, therefore, various definitions were provided regarding this concept.

2.2 Critical Thinking Definition

Critical thinking, according to Dewey is referred to as “reflective thinking” which is an "active, persistent, and careful consideration of a belief, or supposed form of knowledge in the light of the grounds, which support it and the further conclusions to which it tends" (Dewey, 1933). He

highlighted the need for individuals to be actively and continuously involved in their own process of learning. In other words, “reflective thinking” promotes individuals to raise questions, seek information, and reflect upon their own thinking process to avoid making premature decisions. To him, skillful reasoning is the key to critical thinking. Fisher (2011) further describes Dewey’s definition of critical thinking as a dynamic process through which individuals think independently, posing questions, while insisting on the use of useful information to justify rational conclusions. He indicates that reasoning and its implications are essential to the process of thinking critically, due to their importance in presenting one’s viewpoints.

Edward Glaser proposed a definition of this concept similar to that of Dewey's (Fisher, 2011):

An attitude of being disposed to consider in a thoughtful way the problems and subjects that come within the range of one's experience; 2) knowledge of the methods of logical inquiry and reasoning; and 3) some skill in applying those methods (p. 3).

Although his definition is very similar to that of Dewey’s, but he states the necessity of evidence to confirm ones conclusions, as well as the need of the disposition to benefit from critical thinking skills (Fisher, 2011). Glaser designed Watson-Glaser Critical Thinking Appraisal (WGCTA), which is a well-known assessment tool of critical thinking. He takes all three steps of this definition into account by providing test takers with thought-provoking items, which require five forms of higher-level thinking: *inference, recognition of assumptions, deduction, interpretation, and evaluation of arguments.*

Robert Ennis (1993) expanded Dewey’s definition, viewing one’s choices and actions as basic aspects of critical thinking. On the other hand, Richard Paul considered metacognition as an important element of critical thinking. He believes that the improvement of critical thinking ability can result from thinking about one’s own thinking. He defines critical thinking as:

Critical thinking is that mode of thinking – about any subject content or problem – in which the thinker improves the quality of his or her thinking by skillfully taking charge of the structures inherent in thinking and imposing intellectual standards upon them (Paul, 1993).

Michael Scriven's (1997) definition is also of significance as he considers critical thinking as a learned academic competency like reading and writing. He refers to critical thinking as “skilled and active interpretation and evaluation of observations and communications, information and argumentation” (Fisher & Scriven, 1997). Finally, as reported by Peter Facione, based on the consensus of 46 experts on Delphi Panel, critical thinking was defined as:

purposeful, self-regulatory judgment, which results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological, criteria logical, or contextual considerations upon which that judgment is based (P. A. Facione, 1990).

Facione (1990) claimed that the use of cognitive skills without the affective dispositions to employ those skills might not be sufficient. He also maintained that though individuals might develop the necessary cognitive skills for good reasoning, getting competent in using those skills is another challenge. According to a consensus among scholars in critical thinking research, metacognition should also be considered as an important element as it allows individuals to understand and examine their own thinking (Facione, 1990). Moreover, Delphi Panel's definition concerning critical thinking was adopted as the theoretical framework of this study.

2.3 Critical Thinking Assessment

Tracing critical thinking tradition in the 20th century, we come across many influential figures such as Facione, the co-author of the widely recognized tests in the domain of critical thinking, known as California Critical Thinking Skills Test (CCTST).

In 1990, in a Delphi study that was conducted over a period of two years by the American Philosophical Association (APA), a group of experts (from Philosophy, Psychology, Education and other physical and social science disciplines) across United States and Canada, agreed upon a conceptualization of critical thinking (Facione, 1990). Based on their research, critical thinking was defined as “purposeful, self-regulatory judgment” (P. A. Facione, 1990). Two aspects of critical thinking developed from this conceptualization, the cognitive ability aspect (CT skills) and the affective aspect (CT disposition). The former resulted in the development of California Critical Thinking skills Test (CCTST) and the latter led to the development of California Critical Thinking Disposition Inventory (CCTDI). A detailed description of California Critical Thinking Skills Test (CCTST) is provided in the following section as the current study employed CCTST as an instrument for data collection.

2.3.1 California Critical Thinking Skills Test (CCTST)

California Critical Thinking Skills Test (CCTST) was developed as an assessment instrument to measure individuals CT skills (P. Facione, Facione, Blohm, & Giancarlo, 2002). CCTST provides an overall assessment of the following cognitive skills: interpretation, analysis, evaluation, explanation, and inference. The test consisted of 34 multiple-choice questions based on some general background knowledge that were derived from a set of 200 previously piloted multiple-choice questions (P. A. Facione, 1990). The test reports six scores: An overall score on critical thinking cognitive skills and five sub-scale scores on individuals’ *inference, evaluation, analysis, deductive* and *inductive reasoning*.

CCTST is available in two forms of ‘A’ and ‘B’. The two parallel forms were constructed, item by item which resulted in 28 changed items out of the 34 items in the test. As stated in the

test manual, the two forms are conceptually and statistically equivalent (N. Facione & Facione, 1994). CCTST Form-B was adopted in this study as it is considered as a valid and reliable scale in Iran for CT assessment (GhorbanDordiNejad & Heydari, 2012) as well as its wide use in the academic fields. The test does not differentiate between academic major, ethnicity or racial heritage, and gender, but following critical thinking instruction, the results of all genders and ethnic groups are not equivalent (P. A. Facione, 1991). The definition of the subscales are provided in Table (2.1) below.

Table 2.1: Definitions of CCTST Sub-Scales

Sub-Scale	Definition
Analysis	To comprehend and express the meaning or significance of a wide variety of experiences, situations, data, events, judgments, conventions, beliefs, rules, procedures, or criteria and to identify the intended and actual inferential relationships among statements, questions, concepts, descriptions or other forms of representation intended to express beliefs, judgments, experiences, reasons, information or opinions.
Evaluation	To assess the credibility of statements of other representations which are accounts or descriptions of a person's perception, experience, situation, judgment, belief or opinion; and to assess the logical strength of the actual or intended inferential relationships among statements, descriptions, questions, or other forms of representations and to state the results of one's reasoning; to justify the reasoning in terms of the evidential conceptual methodological, criteriological, and contextual considerations upon which one's results were based; and to present one's reasoning in the form of cogent arguments.
Inference	To identify and secure elements needed to draw reasonable conclusions; to form conjectures and hypotheses, to consider relevant information and to educe the consequences flowing from data, statements, principles, evidence, judgments, beliefs, opinions, concepts, descriptions, questions, or other forms of representation.
Deductive Reasoning	The assessment of truth of the premises purportedly necessitates the truth of conclusion.
Inductive Reasoning	An arguments' conclusion is purportedly warranted, but not necessitates, by the assumed truth of its premises.

Facione et al. (2002). *The California Critical Thinking Skills Test (CCTST): Test manual 2002 updated edition*. Millbrae: The California Academic Press/insight Assessment, p. 6.

Although the notion of critical thinking can be traced back to the time of Socrates, it was only introduced within the field of education in the past few years.

2.4 Critical Thinking in Language Learning

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 surface and question assumptions, and to deeply analyze a range of complex information, issues, and problems (Celuch, Black, & Warthan, 2009). Nowadays, it is considered as one of the main concepts of education, especially at higher levels. As Moon (2008) believes, university students will become critical thinkers if critical thinking is explicitly depicted in higher education. 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).

The importance of incorporating critical thinking into classrooms, irrespective of subject matter, is rigorously recognized. According to Emir (2009), education that is structured accordingly is qualified since it allows the students to achieve higher levels than expected, encourage them to reflect upon the subject, improve the power of imagination, and make positive critics. 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. Educating these students is particularly significant at our time since the ability to generate ideas takes precedence over retaining enormous amount of information.

The Present study is an attempt to find the relationship between Iranian EFL learners’ critical thinking ability and their vocabulary learning strategies. The following provides a brief review of the previous research conducted on EFL learners’ critical thinking ability and foreign

language learning.

2.5 Previous Studies on Critical Thinking

Various studies have investigated different aspects of critical thinking and its implications in language learning. The following provide a review of the studies carried out on learners' critical thinking ability and foreign language learning.

In a study on 100 Iranian university students, Nikoopour, Amini Farsani and Nasiri (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 cognitive ($M=43.62$), metacognitive ($M=32.68$) and social strategies ($M=19.91$), whereas no relationship was found between critical thinking and memory, compensations and affective strategies.

In the course of learning a language, individuals' ability to read and learn from what they have read contributes to the success of the learners. In a study conducted on learners' critical thinking ability and their performance in TOEFL reading section, the results indicated a significant relationship between the two variables (Fahim, Bagherkazemi, & Alemi, 2010). In another study on Iranian learners' critical thinking ability and their reading comprehension skills, the results demonstrated a strong, positive correlation between the two variables ($r=0.73$) (GhorbanDordiNejad & Heydari, 2012). This finding is in line with the findings of Hassani, Rahmany and Babaei (2013). In another attempt, Mohammadi, Heidari and Niry (2012), found a low but significant correlation between critical thinking and overall reading strategy use ($r=.41$). On the other hand, each one of cognitive ($r=.34$), meta-cognitive ($r=.36$) and compensation ($r=.35$, $p<.5$) strategies were positively correlated with learners' critical thinking ability.

In the same vein, Hosseini, Bakhshipour, Khodaei, Sarfallah and Dolatabadi (2012) investigated the relationship between critical thinking ability, reading comprehension and reading strategy use of Iranian university students. The results showed a significant positive correlation between learners' critical thinking ability and reading comprehension, as well as metacognitive and cognitive reading strategy use, as reading requires good thinking skills and various strategies in order to understand and withdraw information from a text. As stated by Johnson, Archibald, and Tenebaum (2010), having sufficient critical thinking and metacognitive skills will affect learners' performance in reading comprehension. However, in a study on the relationship between listening comprehension and critical thinking, the results indicated a positive significant correlation ($r=0.86$) between the two variables (Zare, Behjat, Abdollahimzadeh, & Izadi, 2013).

In a number of studies, an alternative perspective has been provided. For instance, in an experimental approach, Pishghadam (2008) showed that literary discussions get high priority over memorization and can enhance critical thinking abilities of intermediate EFL learners. In another experimental study, Naeini (2005) examined the relationship between collaborative learning and critical thinking of intermediate EFL learners. As the findings revealed, experimental group scored higher and outperformed the control group. In a similar vein, Khodadady, Shirmohammadi, and Talebi (2011) explored the effect of applying brainstorming strategies on enhancing learners' speaking proficiency and critical thinking skills in an IELTS preparation course. The results showed a significantly positive correlation.

Keihaniyan (2013) examined the critical thinking ability of 100 undergraduate students and its relation to language proficiency. The participants were divided into four groups of proficiency (excellent, good, fair, and poor) based on their scores on the Nelson test. The results

of the one-way ANOVA revealed a statistically significant difference in the mean score of the four groups ($F=8.156, p<.05$). Moreover, the mean score of the excellent group ($M = 40.80$) was significantly different from the other three groups (Good, $M =30.62$; Fair, $M = 30.92$; and Poor, $M = 30.65$). Similarly, Rashid and Hashim (2008) studied the relationship between critical thinking and language proficiency of Malaysian undergraduates. The results demonstrated a significant and positive correlation ($r = .63, p<.05$) between critical thinking and all measures of language proficiency. In another study on South African first-year prospective teachers, Grosser and Nel (2013) investigated the relationship between critical thinking skills and academic language proficiency. The findings showed a significant correlation between language proficiency and making inferences ($r=.38, p<0.01$) in particular, and overall critical thinking ability ($r=.41, p<0.01$) in general.

In a study by Fahim and Komijani (2012), the researchers aimed at identifying the relationship between learners' CT, vocabulary strategies and vocabulary knowledge. The results indicated that learners' knowledge of L2 vocabulary was significantly correlated with their CT, in other words, students with greater critical thinking ability scored higher on the vocabulary test. Furthermore, learners' CT was found to be positively correlated with their vocabulary learning strategies such as determination, memorization, cognitive, and metacognitive, but not with their social 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. Table 2.2 presents a summary of the studies mentioned above.

Table 2.2: Summary of the Studies on Critical Thinking and Different Aspects of Language Learning

Author(s) / Year	Sample	Objectives	Findings
Nikoopour, Amini Farsani and Nasiri (2011)	100 Iranian university students	Investigated the relationship between critical thinking and the use of direct and indirect language learning strategies	Statistically significant relationship between critical thinking and cognitive, metacognitive and social strategies, whereas no relationship was found between critical thinking and memory, compensations and affective strategies
Fahim, Bagherkazemi and Alemi (2010)	83 Iranian advanced EFL learners	Investigate learners' critical thinking ability and their performance in TOEFL reading section	Significant positive correlation between performance on the reading section of PBT (paper-based TOEFL) and the ability to think critically
GorbanDordi Nejad and Heydari (2012)	120 Iranian EFL students majoring in Translation, English literature and teaching English	Examine whether there is any relationship between the learners' critical thinking ability and their reading comprehension score in general and their micro-skills	There is a strong relationship between Iranian students' critical thinking skills and their reading comprehension skills
Mohammadi, Heidari and Niriy (2012)	75 Iranian EFL senior students majoring in English Literature and English translation	Investigate the relationship between critical thinking ability and reading strategies used by EFL learners	Low but significant correlation between critical thinking and overall reading strategy use. On the other hand, each one of cognitive, meta-cognitive and compensation strategies were positively correlated with learners' critical thinking ability
Hosseini, Bakhsipour, Khodaei, Sarfallah and Dolatabadi (2012)	70 male and female Iranian university students majoring in English Translation and English Literature	Investigating the relationship between critical thinking ability, reading comprehension and reading strategy use	Significant positive correlation between learners' critical thinking ability and reading comprehension, as well as metacognitive and cognitive reading strategy use
Zare, Behjat, Abdollahimzadeh and Izadi (2013)	78 senior EFL learners	Investigating the relationship between listening comprehension and critical thinking	Positive significant correlation between critical thinking and listening comprehension

Table 2.2, Continued

Author(s) / Year	Sample	Objectives	Findings
Naeini (2005)	144 adult intermediate English learners	Examined the relationship between collaborative learning and critical thinking	The experimental group scored higher and outperformed the control group
Khodadady, Shirmohammadi and Talebi (2011)	20 male Iranian students in two groups of control and experimental	Explored the effect of applying brainstorming strategies on enhancing learners' speaking proficiency and critical thinking skills	The mean scores of the experimental group were significantly higher than the control group on both tests (IELTS speaking and WGCTA)
Keihaniyan (2013)	100 undergraduates students in four different English proficiency levels: Excellent, Good, Fair and Poor	Examined the critical thinking ability and its relationship to language proficiency	Significant relationship was found between critical thinking ability and English language proficiency
Rashid and Hashim (2008)	280 Malaysian undergraduates	Studied the relationship between critical thinking and language proficiency	Results demonstrated a significant and positive correlation between critical thinking and all measures of language proficiency
Grossner and Nel (2013)	80 first-year prospective teachers at a South African university	Investigated the relationship between critical thinking skills and academic language proficiency	Significant correlation between language proficiency and overall critical thinking ability in general, and making inferences in particular
Fahim and Komijani (2010)	70 intermediate EFL students majoring in English Literature, English Translation, and English Language Teaching	Identify any significant relationship between critical thinking ability, L2 vocabulary knowledge, and L2 vocabulary learning strategies	Learners' knowledge of L2 vocabulary was significantly correlated with their CT. Also, learners' CT was found to be positively correlated with their vocabulary learning strategies such as determination, memorization, cognitive, and metacognitive, but not with their social strategies

In the light of the above literature, it can be concluded that critical thinking has an effective role in the course of language learning. However, according to the studies presented

above the number of research on the relationship between Iranian EFL learners' vocabulary learning strategies and their critical thinking ability is rather limited. Hence, the present study attempts to investigate further the relationship between students' choice of vocabulary learning strategies and their critical thinking ability.

Apart from the various factors such as motivation, age, language proficiency, gender, and learning style, which affect the choice of language learning strategies among learners, critical thinking is also considered important in the field of education due to its possible effects on language learning (Villavicencio, 2011). 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 has become a major issue for L2 learning scholars (Thompson, 2002). Likewise, learning underwent a shift from rote training to a continuous process of discovering, questioning and reformulating hypotheses (Pennycook, 2014). Regarding the aims of this study, the following section provide an overview of language learning strategies in general, vocabulary learning strategies, followed by different classifications of vocabulary learning strategies, and the previous studies carried out on vocabulary learning strategy use of Iranian EFL learners.

2.6 Language Learning Strategies

Research on second language learning dates back to mid-1970s, as the focus of language educators shifted towards a more communicative and learner-centered language teaching (Grenfell & Macaro, 2007). Some researchers (Cohen, 2007; Griffiths, 2003; Nunan, 2002; Oxford, 1990, 1994, 2002; Prichard, 2008) have pointed out the significant role of language learning strategies in enhancing learners' mastery of a language. Thus, the role of language

learning strategies in learning a language has been proven by the various studies carried out in the area. According to O'Malley and Chamot (1990), language learning strategies are any set of actions, thought or behaviors that learners employ to assist them in comprehending, storing and retaining new information. Oxford (1994), defines language learning strategies as “specific actions, behaviors, steps, or techniques students intentionally use to improve their progress in apprehending, internalizing, and using the L2” (p. 8). These actions may include concentrating on specific aspects of learning new information, evaluating and organizing them during the process of learning to increase comprehension. They may be used in simple or complex tasks such as learning a list of new vocabularies to comprehending and producing a language (Richards, 1992). Cohen (2007) believes that strategies are ‘conscious mental activities’ that include an action, aim and learning context. In this regard, ‘strategy’ involves some sort of intention on the part of the learner. As stated by Chamot (2005), learning strategies are often conscious and goal-driven actions which facilitate a task of learning, particularly in the early stages of dealing with an unfamiliar language task.

In recent decades, language learning research has made an effort to organize strategies into various taxonomies or classifications. Therefore, researchers in the field of second language learning presented different classifications of language learning strategies (Rubin, 1981; O'Malley & Chamot, 1990; Oxford 1990).

2.6.1 Rubin's (1981) Learning Strategies

In a study, Rubin (1981) found a difference between processes that are directly related to learning and those that are indirectly related, from then on, the strategies were classified into direct and indirect ones. The former directly affects learning while the latter contributes

indirectly to learning. Direct strategies are classified into six subcategories: (1) clarification, (2) monitoring, (3) memorization, (4) inductive reasoning, (5) deductive reasoning, and (6) practice. *Monitoring* as a direct strategy, involves consciously or subconsciously observing one's mistakes, and how the message is understood by the receiver. Storing and retrieving information is *memorization*. Deductive and inductive reasoning are two kinds of inferencing. Learners use *inductive reasoning* when they guess the meaning from a number of possible meanings for a specific situation. The other is *deductive reasoning* and is used when learners try to find some general rules based on their previous knowledge or by generalizing several inductive observations. Rubin (1981) believes that deductive and inductive reasoning along with clarification organize the materials for storage. The materials are then stored by memorization and practice. On the other hand, the indirect strategies are divided into two subcategories: (1) creating opportunities for practice like starting a conversation with other students or watching TV in the target language, and (2) making use of production techniques for communication such as paraphrasing, repetition for further clarification and the use of gestures.

2.6.2 O'Malley and Chamot's (1990) Taxonomy of Language Learning Strategies

In another study, O'Malley and Chamot (1990) presented the taxonomy of three-category strategy, which includes three subcategories: (1) cognitive, (2) metacognitive, and (3) socio-affective strategies. *Cognitive strategies* involve direct manipulation of the materials in a particular learning activity. Repetition, translation, imagery, elaboration, inferencing, deduction, and contextualization are examples of cognitive strategies. *Metacognitive strategies* entail planning, monitoring of one's performance, and evaluating the learning process as well as its outcome. *Socio-affective strategies* relate to interacting with others in the target language, as well

as trying to understand and manage their feelings by making use of different techniques.

2.6.3 Oxford's (1990) Classification of Language Learning Strategies

Among the classifications of language learning strategies, Oxford (1990) proposed the most commonly used taxonomy of language learning strategy in the area of second language acquisition. She divided the strategies into two main categories of direct and indirect strategies, each containing three subsets. *Direct strategies* are directly involved in language learning and contain memory, cognitive and compensation strategies. *Memory strategies* are used for entering new information into memory storage and retrieving it when needed for communication. *Cognitive strategies* affect comprehension and production of a language such as practicing, sending and receiving messages in the target language, analyzing and reasoning. Furthermore, *compensation strategies* are used to fill any gap in the existing knowledge of a language such as guessing, using synonyms, and switching to one's mother tongue. On the other hand, *indirect strategies* are indirectly involved in language learning, which include metacognitive, affective, and social strategies. *Metacognitive strategies* are techniques used for organizing, planning, focusing and evaluating one's own process of learning. *Affective* strategies are used for managing emotions and attitudes, like lowering your anxiety and encouraging yourself. Finally, *social strategies* are those that facilitate interaction with one another, for example, asking questions for clarification and cooperating with others.

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. As some scholars confirm,

most language learning strategies are employed in performing vocabulary learning tasks (O'Malley and Chamot, 1990). Thus, Vocabulary learning strategies as one of the important aspects of language learning have been considered by many researchers since 1970s (Amirian & Heshmatifar, 2013; Rafi, 2013).

2.7 Vocabulary Learning Strategies

The importance of vocabulary in improving students' proficiency in a language has been studied by different researchers (Karami & Barekat, 2012) as it is considered a core component which provides the basis for learners' success in the four language skills. Most difficulties in comprehension and production of a target language is due to learners' insufficient lexical knowledge (Shen, 2008), since in an effective communication, meaning is transferred through lexical items. As Krashen and Terrell (1983) state:

Vocabulary is basic to communication. If acquirers do not recognize the meanings of the key words used by those who address them, they will be unable to participate in the conversation. In addition, if they wish to express some ideas or ask for information, they must be able to produce lexical items to convey their meaning (p. 155).

However, in a classroom context, vocabulary instruction plays an important role, as language cannot be taught without using lexical items. Therefore, various types of approaches and techniques have been proposed by researchers regarding vocabulary teaching. According to Schmitt (1997), learning is "the process by which information is obtained, stored, retrieved and used, therefore vocabulary learning strategies could be any action which affects this broadly defined process" (p. 203). Similarly, Cameron (2001) defines vocabulary learning strategies as "actions that are taken by learners to help them comprehend and retain vocabulary" (p. 92). Vocabulary learning strategies are considered as part of general language learning strategies, that

enable learners to take responsibility for their own learning (Nation, 2001). On the other hand, employing strategies encourages overall self-direction, which results in being independent and taking responsibility of your own learning and constantly gaining confidence, engagement and competence (Oxford, 1990). 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. Thus, having the knowledge of vocabulary learning strategies can assist language instructors to organize their lessons more efficiently and to help learners in using effective strategies. Over the years, second language researchers have made a great effort to classify learning strategies that are used by second language learners.

2.7.1 Classification of Vocabulary Learning Strategies

Various types of language learning taxonomies have been proposed by researchers during the last decades (Ellis, 1994; Gu & Johnson, 1996; Nation, 2001; O'malley & Chamot, 1990; Oxford, 1990; Rubin, 1981; Schmitt, 1997; Stern, 1992). Regarding foreign language vocabulary learning, Schmitt (1997), Gu and Johnson, (1996) and Nation (2001) have proposed different taxonomies. Among the afore mentioned researchers, Schmitt (1997) developed a comprehensive inventory of vocabulary learning based on Oxford's (1990) taxonomy of language learning strategies which will be used as the framework for this study. The following sections will provide a review of three vocabulary learning taxonomies proposed by Gu and Johnson (1996), Nation (2001), and Schmitt (1997).

2.7.1.1 Gu and Johnson (1996)

Gu and Johnson (1996) examined the vocabulary learning strategies of Chinese university students using a vocabulary learning questionnaire, vocabulary size test and tests of proficiency. The questionnaire consisted of two sections including learners' belief about vocabulary learning and a list of 91 strategies. Based on the study, they classified the vocabulary learning strategies into four main categories: (1) metacognitive, (2) cognitive, (3) memory, and (4) activation strategies.

Selective attention and self-initiation strategies are two sub-sets of metacognitive strategies. Employing selective attention involve identifying the words that are essential for comprehending a text. Using various means to clearly understand the meaning of lexical items is an example of self-initiation strategies. Cognitive strategies entail guessing strategies, use of dictionaries, and note-taking strategies. Guessing strategies are employed when learners guess the meaning of words through linguistic clues and by referring to their background knowledge. Memory strategies include both rehearsal and encoding strategies. The former includes the use of word lists and repetitions to learn a word, while the latter contains strategies such as associations, imagery, visual, auditory, semantic and contextual encoding. As for the last category, activation strategies, it involves using new words in different contexts.

2.7.1.2 Nation (2001)

Unlike other classifications of vocabulary learning strategies, Nation's (2001) taxonomy is purely theoretical rather than being derived from any research results. Nation (2001) organized the strategies into three general groups (1) planning vocabulary learning, (2) sources of vocabulary learning, and (3) learning processes, each containing a subsection of categories.

Planning includes decisions concerning where, how and how often to focus attention on the lexical items, and it is comprised of strategies for selecting the words that best serve their goal of learning, the aspects of word knowledge, choosing the most suitable strategies from a series of possible options, as well as planning repetition. Referring to dictionaries and using word cards to establish the knowledge of lexical items are instances of planning. As for ‘sources of vocabulary knowledge’ it entails finding information about the new words through analyzing the word form itself, the context in which the word appears, reference sources such as L1 and L2 dictionaries, and using parallels with other learned languages. Depending on the goals of learning, this information may include some or all aspects of word knowledge.

The third category, ‘processes’, concerns establishing word knowledge from various sources or the ways of recalling vocabulary by noticing, retrieving and generating, to make it available when needed. According to Nation (2001), *noticing* is seeing the word to be learned by putting it in a word list, making flash cards, and repetition both orally and visually. He claims that although these strategies are simple, they are basic to deeper processing of words. *Retrieving* involves recalling the previously learned words through the use of receptive or productive skills, visually or orally, in or out of the context. *Generating* strategies include connecting new aspects of knowledge to what is already known through word analysis and semantic mapping.

2.7.1.3 Schmitt (1997)

Since the current study used Schmitt’s (1997) questionnaire of vocabulary learning strategies as one of the instruments, it is worthwhile to give a detailed description of his classification of vocabulary learning strategies. Schmitt investigated 600 Japanese students from junior and senior high school, university level and adult students. His study aimed at identifying the type of

strategies that students used and which ones they considered more helpful. To achieve the objectives of the study, he came up with taxonomy of vocabulary learning strategies, which includes 58 items. The taxonomy was developed according to Cook and Mayer's (1983, cited in Schmitt, 1997) and Nation's (1990), distinction between discovery and consolidation strategies, and Oxford's (1990) classification of language learning strategies. First, he distinguished between two strategies of *discovery*, which include those strategies that learners' employ when encountering a new word for the first time, and *consolidation* which assist learners in remembering the meaning of the words when encountered again. Then, he divided these into different subcategories adopting four categories from Oxford's (1990) taxonomy, and later, adding another category to make his classification more comprehensive. Regarding discovery and consolidation strategies, the former includes determination and social strategies, and the latter contains cognitive, metacognitive, memory and social strategies. Accordingly, Schmitt (1997) justified the rationale behind this categorization as follows:

When encountering a word for the first time, learners must use their knowledge of the language, contextual cues, or reference materials to figure out the new meaning (Determination Strategies), or ask someone else who knows (Social Strategies). These strategies for gaining initial information about a new word are labeled Discovery Strategies. Of course, there are various other kinds of knowledge about words besides meaning, such as word class, spelling, collocations, and register (Richards, 1976), but determining the meaning appropriate to the situation must normally be the most fundamental task on initial introduction. Once learners have been introduced to a new word, it is worthwhile to make some effort to remember it using Consolidation Strategies, which can come from the Social, Memory, Cognitive, or Metacognitive Strategy groups. (p. 206).

Determination strategies are used when learners encounter a new word and try to guess its meaning by referring to the context, reference materials and structural knowledge “without recourse to another person's expertise” (Schmitt, 1997, p. 205). Determination involves such

strategies as using bilingual or monolingual dictionaries to find the meaning of words, using word lists and flash cards, checking for L1 cognates if the two languages are closely related, and analyzing parts of speech. Social strategies are included in both categories since they can be used in both discovering and consolidating a word. Social strategies are used when words are learnt through interaction with other people. Asking teachers for the L1 translation, asking for the definition of the words by paraphrasing, and giving synonyms; Asking classmates for the meaning of the words and getting engaged in group activities are ways of employing social strategies to discover the meaning of new word. While, studying and practicing the words in groups, interacting with native speakers and when teachers check students for accuracy of their word lists and flash cards are examples of social strategies for consolidating a word.

Memory strategies involve using traditional mnemonic techniques, to organize or transform the mental information to make it more memorable such as making a connection between the new word and previously learnt knowledge to help learners learn faster. For example, information can be learned and retrieved through sounds (e.g. study the sound of a word, images (e.g. study words with a pictorial representation of its meaning, image words meaning), a combination between sounds and images (e.g. use keyword method), body gestures (e.g. use physical actions when learning a word) or location (e.g. the Loci method) (Schmitt, 1997). Although cognitive and memory strategies are difficult to distinguish, but “the goal of both is to assist recall of words through some form of language manipulation” (Schmitt, 1997, p. 205), but the focus of cognitive strategies are not on manipulative mental processing, thus, they are comprised of repetition and using mechanical means for the purpose of acquiring and retaining information. Verbal and written repetitions, using word lists and flash cards, taking notes in class, keeping a vocabulary notebook, putting English labels on physical objects, are

ways of using cognitive strategies.

In Schmitt's taxonomy, metacognitive strategies are referred to as strategies that learners' consciously employ to evaluate, make decisions, monitor, and have control over their own process of learning. Using language media (songs, movies, etc.) to maximize L2 exposure; testing oneself, which proves the usefulness of one's choice of strategies and provides considerable amount of input; skipping and passing new words; and studying words over time are instances of metacognitive strategies. Schmitt's classification of vocabulary learning strategies is shown in Figure 2.1.

According to researcher such as Catalan (2003), Schmitt's classification of vocabulary learning strategies has the following advantageous over other taxonomies. It is more standardized; the use of it for collecting data, coding and analysis is simple; it is based on both theories of learning and memory; it can be used for different age groups, educational backgrounds and target languages; and it allows to be compared with other studies. Therefore, Schmitt's VLS questionnaire was used as an instrument for data collection in this study.

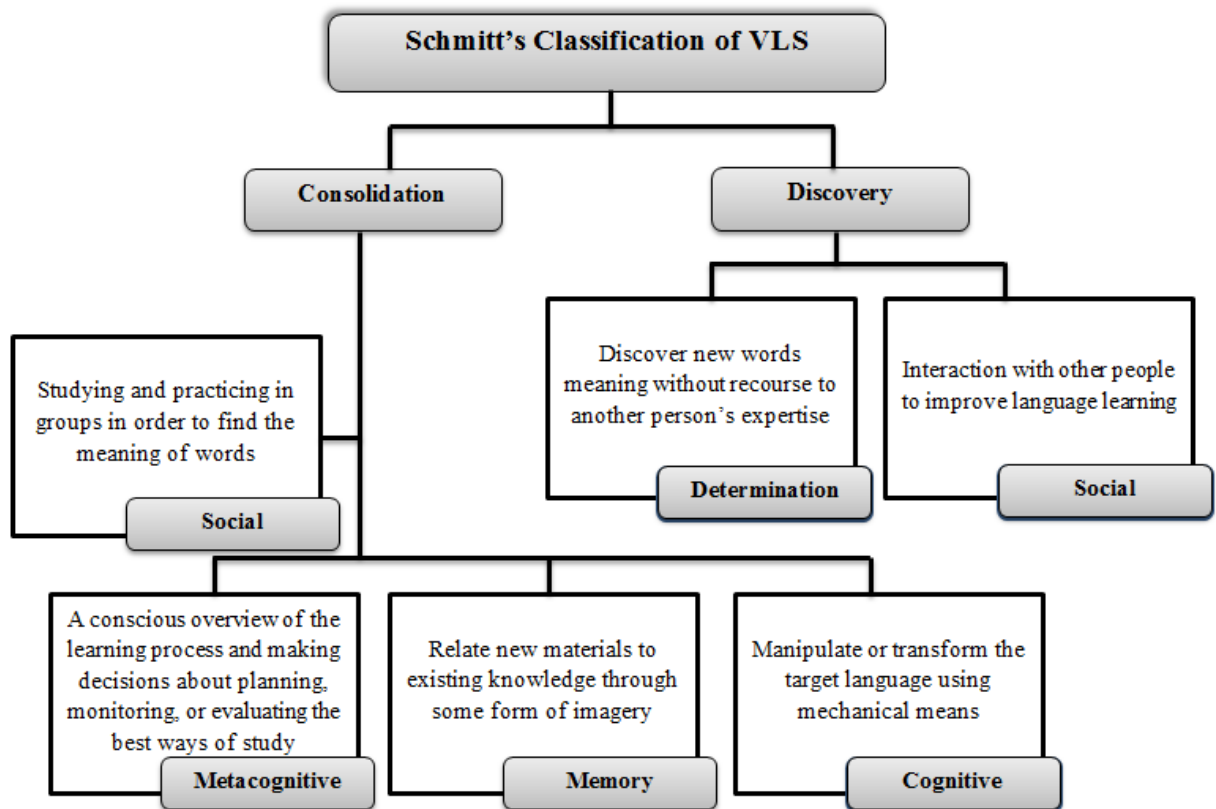


Figure 2.1: Schmitt's Classification of Vocabulary Learning Strategies

The following paragraphs provide a review of the previous studies carried out on Iranian EFL learners' use of vocabulary learning strategies.

2.8 Previous Studies on Vocabulary Learning Strategies

There are various studies on learners' vocabulary learning strategies and different aspects of language such as learners' language proficiency (Abadi & Baradaran, 2013; Jafari & Ajideh, 2012; Karami & Barekat, 2012); reading comprehension (Kafipour & Hosseini Naveh, 2011); learners' vocabulary size (Hamzah, Kafipour, & Abdullah, 2009); knowledge of vocabulary (Rastegar Haghghi Shirazi & Yamini, 2011); and listening (Khoshsaligheh, 2009). For the

purpose of the current study, this section will provide a review of the previous studies that have been conducted on vocabulary learning strategy use of Iranian EFL learners.

With regard to studies on Iranian students, Abadi and Baradaran (2013) examined the relationship between vocabulary learning strategy use and learner autonomy of 190 male and female Iranian learners with different proficiency levels. To meet the purpose of the study, the researchers employed Nation's (2001) questionnaire of vocabulary learning strategies, a questionnaire of learner autonomy, and two tests of language proficiency. By taking into account learners VLS use and their level of proficiency, the results demonstrated that students in advanced level favor Memory strategies: Encoding ($M= 75.77$) is used the most and Activation strategies ($M= 17.84$) the least. However, the same results were obtained for the intermediate level with Encoding ($M=54.88$) and Activation ($M=13.35$) strategies having the highest and lowest mean score, respectively. Moreover, ($r=.249$, $p= .015 < .05$), which indicates that, more autonomous learners use more strategies in there was found to be a significant positive relationship ($r= .457$, $p= .000<.05$) between learner autonomy and VLS use of high proficient learners, while this relationship for low proficient learners was not as significant as in the advanced group learning vocabulary.

In the same study on the effect of learners' level of proficiency on the use of vocabulary learning strategies, Karami and Barekat (2012) identified the type of VLS use of Iranian EFL learners in three different proficiency levels: elementary, intermediate and advanced. The results of the one-way ANOVA showed statistically significant difference between VLS use of learners among three groups: ($F=7.04$, $p= .001$), memory ($F=3.17$, $p=.046$), cognitive ($F=7.42$, $p= .001$), and metacognitive strategies ($F=6.48$, $p=.002$). Regarding memory strategies (Use new words in sentences, use physical action when learning a new word, and study the sound of a

word), learners' choices of strategies differed among the three proficiency groups, with advanced students preferring more memory strategies (advanced $M= 3.44$, intermediate $M=3.05$). While, cognitive strategies (Make list of new words, take notes or highlight) were the most preferred ones among all groups (advanced $M= 3.93$, intermediate $M=3.14$, elementary $M=3.39$). This is due to the current educational training setting in which the emphasis is mostly on the role of memory in learning. The last and least used strategies among all three groups were the social ones (advanced $M= 3.90$, intermediate $M=3.00$, elementary $M=3.33$), as Iranian EFL learners are not normally trained to interact with others as a strategy to learn a language. In addition, collaborative and social learning is not promoted in the educational curriculum (Zarafshan, 2002).

In another study, Jafari and Ajideh (2012) carried out a study to investigate Iranian EFL learners' preference of vocabulary learning strategies across three different proficiency levels. The findings revealed a negative relationship between learners' level of proficiency and frequency of strategy use. In other words, there is a minimal difference between pre-intermediate and intermediate students' frequency of memory ($M=2.95; 2.93$), cognitive ($M=3.25; 3.44$), compensation ($M=3.23; 3.43$), metacognitive ($M=3.56; 3.86$), and social strategies ($M=3.40; 3.73$, respectively). The only difference was in the use of affective strategies which were preferred most by the advanced learners ($M=3.08$). This indicates that more proficient learners are able to manage and take charge of their own learning by controlling the factors which might affectively influence their process of learning. In relation to the findings, metacognitive strategies were most frequently used whereas memory strategies were less frequent among the three proficiency groups. While Khoshsaligheh (2009) investigated the most frequent and the most popular vocabulary learning strategies employed by 96 Iranian IELTS candidates, and their

relation to listening performance. The results showed that among the four categories of strategies, memory related ones were most frequently used among Iranian learners while social strategies were less common. On the other hand, imagining the meaning of words (MEM, $M=4.48$), using English language internet material (COG, $M=4.28$), and guessing from the textual context in reading (MET, $M=4.27$) were the three most popular strategies, respectively. In accordance with the results, there seemed to be no significant relationship between learners' choice of strategies and their listening performance since learners do not change their choices of vocabulary learning strategies, even though their listening performance improves over time.

On the other hand, in a study on Iranian undergraduate EFL learners, Rastegar and Yamini (2011) employed Schmitt's questionnaire of vocabulary learning strategies and a Word-Associates-Test (WAT) to investigate the relationship between learners depth of vocabulary knowledge and strategy use. The results indicated the effect of metacognitive ($M=4.04$; $SD=.73$), cognitive ($M=3.70$; $SD=.60$), and determination strategies ($M=3.40$; $SD=.54$) on depth of vocabulary knowledge of more skilled learners due to the greater choices of vocabulary learning strategy use. On the other hand, less skilled learners relied more on their memory ($M=3.10$; $SD=.39$) to answer the word test. This shows that less proficient learners mostly tend to rely on rote learning to master vocabulary knowledge that only lasts for a short period resulting in less depth of knowledge. However, this can be seen in Iran's educational system, as it demands short-term achievements, since the system's emphasis on transmitting knowledge is restricted to memorization of materials that is due to curriculum planning and educational assessment (Hashemi, Naderi, Shariatmadari, Naraghi, & Mehrabi, 2010). Additionally, Iranian EFL learners tend to be a moderate strategy users, which is in line with the findings of (Aliakbari & Hayatzadeh, 2008; Hamzah et al., 2009; Jafari & Ajideh, 2012; Kafipour & Hosseini Naveh,

2011; Rahimi, Riazi, & Saif, 2008) in the context of Iran.

In an attempt to investigate students' use of vocabulary learning strategies and its contribution to reading comprehension, Kafipour and Hosseini Naveh (2011), adopted Schmitt's questionnaire of vocabulary learning strategies and reading section of a TOEFL test. The results of the descriptive analysis showed that metacognitive strategies with mean score of 3.37 were most frequently used while social strategies (M=2.32) were least frequent due to the Iran's instruction environment. Furthermore, cognitive (M=3.26), memory (M=3.19) and determination strategies (M=3.17) being in 2nd, 3rd and 4th rank, respectively. The results of the stepwise multiple regressions indicated that among the five categories of VLS, only social strategies were significantly correlated (p= 0.00) with moderate contribution (5.7%) to students' reading comprehension. In other words, students who scored higher in reading comprehension were those who used social strategies in discovering word meaning, as compared to other strategies. This indicates that language instructors may need to emphasize on encouraging learners to use a variety of strategies to improve their comprehension of a given text. A summary of the previous studies on Iranian learners' vocabulary learning strategies is presented in Table 2.3.

Table 2.3: Summary of the Studies on Vocabulary Learning Strategy Use

Author(s) / Year	Sample	Objectives	Findings
Abadi and Baradaran (2013)	190 male and female Iranian EFL learners in different proficiency levels	Examined the relationship between vocabulary learning strategy use and learner autonomy	There was found to be a significant positive relationship between learner autonomy and VLS use of high proficient learners, while this relationship for low proficient learners was not as significant as in the advanced group
Karami and Barekat (2012)	36 EFL learner in three different levels: elementary, intermediate and advanced	Examined the effect of learners' level of proficiency on the use of vocabulary learning strategies	Statistically significant difference between VLS use of learners among three groups

Table 2.3, Continued

Author(s) / Year	Sample	Objectives	Findings
Jafari and Ajideh (2012)	102 EFL learners in pre-intermediate, intermediate, and advanced levels	To investigate Iranian EFL learners' preference of vocabulary learning strategies across three different proficiency levels	Negative relationship between learners' level of proficiency and frequency of strategy use. In addition, metacognitive strategies were most frequently used whereas memory strategies were less frequent among the three proficiency groups
Khoshsaligheh (2009)	96 Iranian IELTS candidates	Investigated the most frequent and the most popular vocabulary learning strategies employed Iranian IELTS candidates, and their relation to listening performance	Among the four categories of strategies, memory related ones were most frequently used among Iranian learners while social strategies were less common. Also, there seemed to be no significant relationship between learners' choice of strategies and their listening performance
Rastegar and Yamini (2011)	130 EFL learners	Investigate the relationship between learners depth of vocabulary knowledge and strategy use	The results indicated the effect of metacognitive, cognitive, and determination strategies on depth of vocabulary knowledge of more skilled learners. On the other hand, less skilled learners relied more on memory strategies
Kafipour and Hosseini Naveh (2011)	164 EFL undergraduate students	Investigated students' use of vocabulary learning strategies and its contribution to reading comprehension	Metacognitive strategies were most frequently used while social strategies were least frequent. However, social strategies were significantly correlated with moderate contribution to students' reading comprehension

To sum up, it is reasonable to view Iranian EFL learners are considered as medium strategy users due to Iran's educational situation in which more emphasis is on rote memorization of the taught materials, and less emphasis on the role of social strategies in language learning. According to the studies mentioned above, learners' vocabulary learning strategy use is significantly correlated with their vocabulary knowledge (Rastegar Haghghi

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). Furthermore, cognitive, metacognitive and memory strategies are mostly preferred and frequently employed by Iranian 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 in Iran regarding the importance of these strategies in learning a language as well as the EFL context of Iran in which the opportunity for consolidating the meaning of words through communication is not provided.

2.9 Summary of the Chapter

The role of language learning strategies in learning a language has been proven by various studies carried out in the field. According to Oxford (1994), language learning strategies are specific actions, behaviors, steps, or techniques students intentionally use to improve their progress in apprehending, internalizing, and using the L2. Vocabulary learning strategies as a subcategory of general language learning strategies is considered fundamental in language learning. Regarding foreign language vocabulary acquisition, Schmitt (1997) developed a comprehensive inventory of vocabulary learning, which will be used as the framework for this study.

Furthermore, regarding the aim of the study, a historical review of critical thinking, its definition, and importance in language learning was also presented. Critical thinking is defined as purposeful, self-regulatory judgment, which results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological, criteria logical, or

contextual considerations upon which that judgment is based (P. A. Facione, 1990). Although the idea of critical thinking can be traced to the time of Socrates, but it was introduced within the field of education in the past few years. Nowadays, it is considered as one of the main concepts of education, especially at higher levels.

By referring to the literature, it can be concluded that critical thinking has an effective role in the course of language learning. However, the number of studies on the relationship between Iranian EFL learners' vocabulary learning strategies and their critical thinking ability is rather limited. Thus, the present study focused on the relationship between Iranian EFL learners' critical thinking ability and their vocabulary learning strategies. In addition, learners' critical thinking score and the use of vocabulary learning strategies were examined based on their level of proficiency.

CHAPTER III

METHODOLOGY

This chapter presents the methods and procedures that are involved in this study. First, the selection and the characteristics of the participants are presented. Then, the instruments that were used for data collection are explained in details, this is then followed by the procedure of data collection and the description of the statistical data analysis. In brief, this study applied a mixed-method approach based on a correlational research design, to examine the relationship between students' vocabulary learning strategy use and their critical thinking ability. A brief summary is provided at the end of the chapter.

3.1 Restatement of Research Questions

This study attempts to address the following research questions:

Research Question 1: What are the types of vocabulary learning strategy use among Iranian students?

Research Question 2: What are the differences in vocabulary learning strategy use between proficient and less EFL proficient students?

Research Question 3: What is the difference in terms of critical thinking scores between proficient and less proficient students?

Research Question 4: To what extent are the learner's vocabulary learning strategies related to their critical thinking ability?

3.2 Research Design

To answer the above research questions, the present research adopted a mixed-method study, which uses both the collection and analysis of qualitative and quantitative data (Dornyei, 2007, p. 164). As recommended by Dornyei (2007), the mixed-method research supports both quantitative and qualitative data by providing a better understanding of a certain area and phenomenon through description of specific details and presenting numeric trend. Thus, the present study employed the mixed-method in order to get reliable data.

This mixed-method study is based on a correlational research design in which the necessary data is collected through a survey of vocabulary learning strategies and an instrument that collects data related to critical thinking ability to identify the relationship between learners' vocabulary learning strategy use and critical thinking ability. This correlational research attempts to determine the extent of a relationship between the two variables i.e. the vocabulary learning strategy use and critical thinking ability of learners, using statistical data.

3.3 Participants

The study was conducted in University Malaya (UM), Malaysia. A total of 80 Iranian male and female postgraduate (PhD and Master) students took part in the study. The participants were selected among the postgraduate students as they were more accessible at the time of the study. They were all native Persian 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. Out of eighty students, 14 students failed to complete all the requirements of the study that includes completing a questionnaire of vocabulary learning strategies and a test of critical thinking skills. Therefore,

their data were removed from the study.

According to the requirements for international students to be admitted into Malaysian universities, all international students must have an English language proficiency certificate, either IELTS or TOEFL. Thus, there is not much difference between students' level of proficiency as they are supposed to reach a certain level of competence before admitted into Malaysian universities. 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. Based on the objectives of the study, in order to compare the critical thinking score and the use of strategies between two groups of proficiency, the participants had to be divided into two groups of students that are deemed as "proficient learners" and "Less proficient learners". There are altogether 29 proficient learners and 37 less proficient learners.

Their IELTS band score ranged from 5-7.5, so the grouping was based on the average mean score (6.25) obtained from students IELTS band score, with Less Proficient students holding IELTS band scores 5-6 and the Proficient ones 6.5 and above. Moreover, in the demographic part of the vocabulary learning strategies questionnaire, students were asked to write the years of exposure to English along with their IELTS band score. According to Table 3.1, students' years of exposure to English ranged from 2-25 years, with the mean being 7 years. In this study, there is no a distinct difference in the level of proficiency between the two groups, concerning their IELTS band scores but the group of students that are deemed as 'proficient' are more competent in English than the other group, as their mean years of exposure to language is higher as compared to the less proficient group of students. Since exposure to a language determines students' level of language proficiency (Kaushanskaya, Yoo, & Marian, 2011), the amount of exposure to L2 is also considered important as it contributes to learners' success in

second language acquisition (Krashen, 1985; Long, 1996).

Table 3.1: Students' Years of Exposure to English

	Years of exposure to English (Mean)
All participants	7
Proficient students	9
Less proficient students	5

With regard to their program of study, 47% of the participants were PhD students while 53% were Master students in various majors like Engineering, Languages, Computer science, Medicine, Art, Business, and Biological sciences. The reason for selecting the students from various academic majors was due to lack of Iranian students in one particular field of study. Table 3.2 presents a description of the participants under study. The next section will detail the instrumentation aspect of this study.

Table 3.2: Description of the Participants

		No. of Participants	%
Program of study	Master	35	53
	PhD	31	47
Gender	Male	27	41
	Female	39	59
Level of proficiency	Proficient	29	44
	Less Proficient	37	56

3.4 Instrumentation

The current study is a mixed-method research on Iranian students' vocabulary learning strategy use 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), followed by interview sessions.

Schmitt's Vocabulary learning strategies questionnaire (VLSQ) was used to identify the types of vocabulary learning strategies used by learners; California Critical Thinking Skills Test (CCTST) to determine learners' critical thinking ability; and the interview to validate learners' choices of strategies as stated in the questionnaire. According to Dornyei (2001), utilizing both a questionnaire and interview provides the possibility of presenting an elaborate and comprehensive understanding of a complex matter that is achieved by looking at it from different angles (p. 164). The following provides a detailed explanation of the instruments employed in the study.

3.4.1 California Critical Thinking Skills Test (CCTST)

California Critical Thinking Skills Test (CCTST) was used in this study to determine subjects' critical thinking ability (APPENDIX A). The test was developed from the work of the Delphi definition of critical thinking (Facione, 1990) and this instrument achieves a reliability reading of 0.68 to 0.70 (P. A. Facione, 1992). This is a standard test that has been used in a wide range of studies in the field of Education.

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 & Heydari, 2012). The original test was in

English, but to ensure accurate responses by the subjects, the researcher had to use the translated version of Form-B, which is validated by Khalili 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, 1990).

A review of CCTST reveals that various question formats are employed in the test. The first few questions involve simple analysis of a sentence. They inquire respondents to choose the option that "means the same as" or "is the best interpretation of" the given sentence. The next questions require the identifications of the role of various sentences in a short paragraph; that is to determine the sentence is the main claim or conclusion, is it part of a reason, or is it logically related to the inference presented.

Questions related to evaluation, provide short passages, and ask the respondents to decide whether the reasons offered present the certainty of the conclusion drawn. In the other evaluation questions, subjects are required to assess the inference drawn as being good or bad, and to give reasons for making that evaluation. On the other hand, Inference questions provide a set of statements and ask the respondents to point out what these indicate or require. Moreover, some of the items in the test contain questions that can be found in a reading comprehension.

The test concludes with questions that are more complicated. In these items, subjects can combine both deductive and inductive modes of reasoning to evaluate a given problem, or give reasons for their evaluation. Out of 34 questions, 14 are related to evaluation, 9 to analysis, and 11 to inference. Each correct answer is given 1 point, thus a total CT score ranges between 0-34,

with higher scores representing stronger critical thinking ability. Table 3.3 presents the description of the CCTST scores.

Table 3.3: Description of the CCTST Scores

CCTST Scores	CCTST Interpretation	
24 or higher	Superior	This result indicates critical thinking skill that is superior to the vast majority of test-takers. Skills at the superior level are consistent with the potential for more advanced learning and leadership.
19-23	Strong	This result is consistent with the potential for academic success and career development.
13-18	Moderate	This result indicates the potential for skills related challenges when engaged in reflective problem-solving and reflective decision-making associated with learning or employee development.
8-12	Weak	This result is predictive of difficulties with educational and employment related demands for reflective problem-solving and reflective decision-making.
0-7	Not Manifested	This result is consistent with possible insufficient test-taker effort, cognitive fatigue, or possible reading or language comprehension issues.

Facione, N.C. (2013). *California Critical Thinking Skills Test Manual*. Millbrae: The California Academic Press/Insight Assessment.

3.4.2 Vocabulary Learning Strategies Questionnaire (VLSQ)

Vocabulary learning strategies questionnaire is based on Schmitt’s (1997) taxonomy of vocabulary learning strategies adopted from Kafipour and Hosseini Naveh (2011), with a reliability coefficient of 0.73 (APPENDIX B). The questionnaire contains two major categories of discovery and consolidation strategies, each consist of subcategories. It is a 5-point Likert scale questionnaire that is consisted of 41 items which measures the frequency of strategy use ranging from ‘never’ to ‘always’. The English version of the questionnaire was used in the study as the participants are proficient enough to understand the items presented in the questionnaire.

The questionnaire is composed of two parts. Part 1, asked for students’ demographic information, and part 2, has 41 questions related to learners’ vocabulary learning strategies. The demographic section elicited information on subjects’ age, level of education, IELTS score, and

years of exposure to English. Part II of the questionnaire contains five parts of vocabulary learning strategies: *determination* (DET), *social* (SOC), *memory* (MEM), *cognitive* (COG), and *metacognitive* (MET) strategies. Table 3.4 provides the definition of each strategy along with the examples of the related items in the VLS questionnaire.

Table 3.4: VLS, Definitions and Examples of Relevant Items

Strategies	Definition	Items in the Questionnaire
<i>Discovery strategies: when encountering a word for the first time</i>		
Determination	Learners encounter a new word and try to guess the meaning by referring to the context, reference materials and structural knowledge.	<ul style="list-style-type: none"> ▪ <i>Check the form of the new word (e.g. find its verb, noun, adj., adv., etc.)</i> ▪ <i>Guess its meaning from context</i>
Social	Asking someone for help in finding the meaning of unknown words; Interaction with other people to improve language learning.	<ul style="list-style-type: none"> ▪ <i>Ask the teacher to give me the definition or translation of a word</i> ▪ <i>Ask my classmates for the meaning</i>
<i>Consolidation Strategies: assist learners in remembering the meaning of the words when encountered again</i>		
Social	Studying and practicing in groups in order to find the meaning of new words.	<ul style="list-style-type: none"> ▪ <i>Study the word with my classmates</i> ▪ <i>Talk (interact) with native speakers</i>
Memory	Making a connection between the new word and previously learnt knowledge through some form of imagery.	<ul style="list-style-type: none"> ▪ <i>Write paragraphs using several new words</i> ▪ <i>Draw a picture of the word to help remember it</i>
Cognitive	Using repetitions and mechanical means for the purpose of acquiring and retaining information to assist recall of words through some form of language manipulation.	<ul style="list-style-type: none"> ▪ <i>Use flashcards to record new words</i> ▪ <i>Take notes or highlight new words in class</i>
Metacognitive	Strategies that learners' consciously employ to evaluate, make decisions, monitor, and have control over their own process of learning.	<ul style="list-style-type: none"> ▪ <i>Use English-language media (songs, movies, the internet)</i> ▪ <i>Test myself with word tests</i>

From: Schmitt, N. (1997). Vocabulary learning strategies. *Vocabulary: Description, acquisition and pedagogy*, 199-227.

To validate the findings obtained from the questionnaire, interviews were conducted with 10 students.

3.4.3 Interview

The interview for the purpose of the current study was semi-structured with open-ended questions (APPENDIX C), which is a more flexible version of a structured interview and “it allows depth to be achieved by providing the opportunity on the part of the interviewer to probe and expand the interviewee's responses” (Hitchcock & Hughes, 1995, p. 157). In other words, in a semi-structured interview, the interviewee can clarify his/her answers through the interviewer’s follow-up questions, prompts and probes. Furthermore, as Cohen et al. (2011) state:

Open-ended questions have a number of advantages; they are flexible; they allow the interviewer to probe so that she may go into more depth if she chooses, or to clear up any misunderstanding;... they encourage co-operation and help establish rapport; and they allow the interviewer to make a truer assessment of what the respondent really believes. Open-ended situations can also result in unexpected or unanticipated answers which may suggest hitherto unthought-of relationships or hypotheses (p. 416).

The most common forms of interviewing include face-to-face verbal and group interchange, individual and telephone surveys. In this study, the interviews were carried out individually with 10 students whose preference in using vocabulary learning strategies reflect what the majority of students showed in their questionnaire (Table 3.5). For example, the overall frequency of strategy use among all students (refer to Table 4.1) indicates the use of determination and metacognitive strategies as the first and second most frequently used strategies, thus, the students that are chosen to take part in the interview show the same preference in their use of strategies. For the sake of ensuring the anonymity of the subjects, each interviewee was given a code (A-J). The interviews were also conducted in Persian to assure

students' comprehension of the questions.

Table 3.5: Students' Selection Criteria for the Interview

Overall Strategy Use		Participant A		Participant B	
Strategies	Mean	Strategies	Mean	Strategies	Mean
Determination	3.23	Determination	3.86	Determination	3.43
Metacognitive	3.22	Metacognitive	3.28	Metacognitive	2.94
Memory	2.93	Memory	3	Memory	2.8
Cognitive	2.81	Cognitive	2.86	Cognitive	2.54
Social	2.26	Social	2.2	Social	1.8

The interviews were conducted in order to find the reasons for students' perception of the usefulness of the strategies. In other words, the interview data was used to triangulate learners' choice of strategies as stated in the questionnaire. The concept of 'triangulation' as stated by Dornyei (2007):

involves using multiple methods, sources or perspectives in a research project; it reduces the chance of systematic bias because if we come to the same conclusion about a phenomenon using a different data collection/analysis method or a different participant sample, the convergence offers strong validity evidence (p. 61).

Thus, the interview questions allow the subjects to express their opinions and suggestions on the usefulness of vocabulary learning strategies based on the findings of the vocabulary learning strategies questionnaire.

3.5 Data Collection Procedure

In order to investigate the relationship between Iranian students' vocabulary learning strategies and their critical thinking ability, and to compare these between two groups of proficient and less proficient learners, three instruments were used to collect data i.e. California Critical Thinking

Skills Test, Vocabulary Learning Strategies questionnaire, and semi-structured interview.

Prior to conducting the study, ethics of research, especially when human participants are involved, were considered and followed. Subjects' anonymity, the right to withdraw from the study at any time, and the offer to access the findings of the study if interested, were taken into account.

Interested students were asked to sign the consent forms prior to conducting the study (APPENDIX D), and the researcher ensured that all the participants held an 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, the Persian version of California Critical Thinking Skills Test-Form B (CCTST-FB) was administered. Subjects were given 45 minutes to answer the test as stated in the test manual (N. 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. The whole process of data collection was carried out in a period of three weeks.

After five weeks, the researcher conducted interview 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, providing a qualitative answer for the first research question. Figure 3.1 presents the process of data collection.

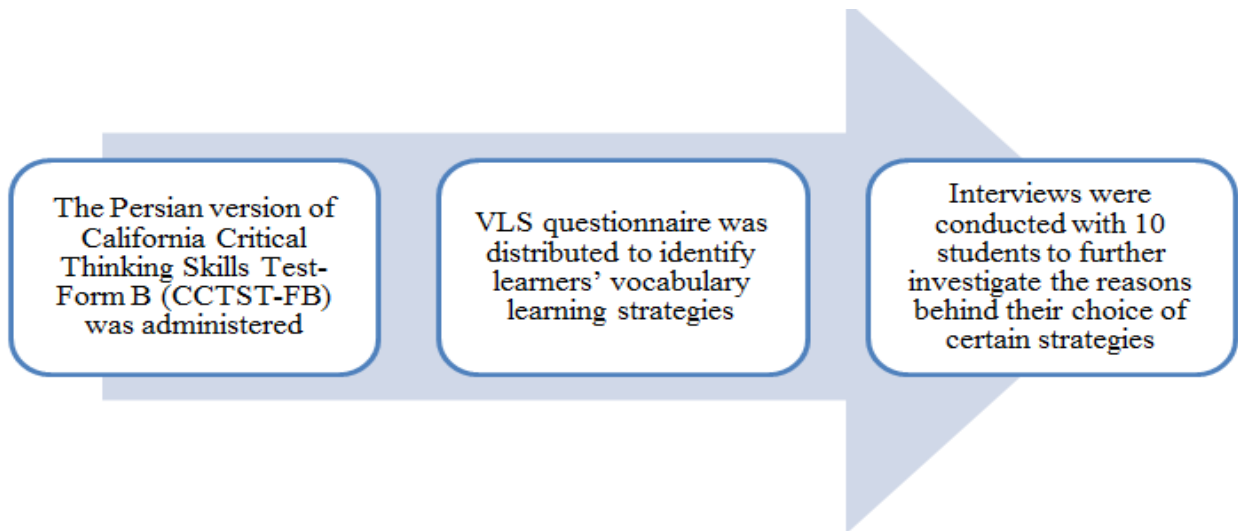


Figure 3.1: Process of Data Collection

3.6 Data Analysis

The data collected from the VLS questionnaire and the critical thinking test were coded and entered into the Statistical Package for the Social Sciences (SPSS) for analysis.

To obtain information on the types of vocabulary learning strategies used by Iranian students, and their score on each of the sub-skills of the critical thinking test, common statistical analyses such as frequency, mean, and standard deviation was calculated. Descriptive statistics were also used to provide a summary of the types of vocabulary learning strategies use among two groups of proficient and less proficient learners. These descriptive statistics provide a simple summary of the sample under study, as well as quantitatively presenting the main features of a collection of data.

To answer the second and third research questions, an Independent sample t-test was used to assess whether the means of the two groups will be statistically different from each other. In other words, to investigate the possible significant difference of critical thinking score and vocabulary learning strategy use, between two groups of proficient and less proficient learners. As stated by Dornyei (2001), in order to find that the difference in any two sets of scores reflects any 'real' difference, a t-test is needed, to check whether the results are generalizable or the scores are likely to be an artefact of random variation (p. 215). Prior to the analysis of the two research questions, subjects were divided into two groups of proficient and less proficient learners based on their IELTS score. Students with IELTS scores 5-6 were grouped into the less proficient group, and the ones with IELTS scores 6 and above were grouped into the Proficient group. Out of 66 students, 37 were in less proficient group and 29 in the proficient group.

Furthermore, to address the fourth research question, inferential statistics was used to examine the relationship between learners' critical thinking ability and vocabulary learning strategy use by computing Pearson moment correlation (r), to allow us to look at the two variables and evaluate the strength and direction of their relationship or association with each other (Dornyei, 2001, p. 223). The strength of the relationship is expressed as a correlation coefficient between -1 and +1. Correlations with positive values close to 1.0 imply strong relationships whereas values close to 0.0 imply weak (or no) relationships. It is necessary to note that a correlational study is different from a cause-effect, as the latter, examines a causal relationship between two or more variables under study.

Moreover, to validate the results obtained from the VLS questionnaire, interviews were conducted with 10 students that were randomly chosen. The interviews were recorded, transcribed and translated for further analysis. To analyze the interview data, the specific

statements and contents were coded, and the relevant codes were grouped together under one category. Table 3.6 presents a summary of the relevant data analysis based on each research question.

Table 3.6: Summary of Data Analysis

Research Question	Relevant Data	Data Analysis
RQ1: Types of vocabulary learning strategies used by Iranian students.	Quantitative: VLS questionnaire findings Qualitative: interview findings	<u>Descriptive statistics</u> frequency, mean and standard deviation. <u>Interview findings:</u> Coding the statements and contents and grouping the relevant codes under one category.
RQ2: The difference in vocabulary learning strategy use between proficient and less proficient EFL students.	Quantitative: Types of VLS and language proficiency	Independent sample t-test
RQ3: The difference in terms of critical thinking scores between proficient and less proficient students.	Quantitative: CT scores and language proficiency	Independent sample t-test
RQ4: The relationship between critical thinking ability and vocabulary learning strategy.	Quantitative: CT ability and VLS use	Pearson moment correlation

3.7 Ethical Considerations

Prior to conducting the study, the following ethics of research were considered and followed.

Before participating in the study, the nature and purpose of the research were fully explained to the participants in order to get their consents. Therefore, the interested students gave their consents voluntarily by signing the informed consent forms. On the other hand, the participants were given the right to withdraw from the study at any time, as well as the offer to access the findings of the study if interested. Also, the confidentiality of the participants was ensured by obtaining the data anonymously.

3.8 Summary of the Chapter

This chapter discussed the methods in which the research has been carried. As mentioned, this study followed a mixed-method research, which is a combination of both qualitative and quantitative methods of data collection.

Based on the research questions, the present study utilized three instruments to gather the necessary data. California Critical Thinking Skills Test (CCTST) was used to determine subjects' critical thinking ability; Schmitt's vocabulary learning strategies questionnaire (VLSQ) to identify the different types of vocabulary learning strategies that is used by learners, and the interview sessions to further investigate the reasons behind learners' choices of certain strategies and to validate the results obtained from the questionnaire findings. In addition, a detailed description of each instrument was given, and the process of data collection was explained.

Finally, to analyze the data, statistical analyses including descriptive and inferential statistics, and an independent sample t-test were performed to address the four research questions.

CHAPTER IV

RESULTS AND DISCUSSION

The current study was carried out to identify the type of vocabulary learning strategies used by Iranian EFL learners; examining proficient and less proficient students' by looking into their choice of vocabulary learning strategies and their critical thinking ability, as well as, investigating the relationship between learners' critical thinking ability and vocabulary learning strategies. This chapter presents the analysis and interpretation of the findings according to each research question. Although some of the findings of this study are consistent with previous studies, some results are particular to this group of participants.

4.1 First Research Question

What are the types of vocabulary learning strategy use among Iranian students?

4.1.1 Types of Strategies Used by Iranian Students

To identify the types of vocabulary learning strategies used by Iranian EFL learners, common statistical analyses such as mean, and standard deviation of the scores were calculated. The descriptive statistics shows that the mean of the strategy items range from 2.26 to 3.23 and the standard deviation from 0.94 to 1.23. Table 4.1 presents the total mean score and standard deviation of learners' vocabulary learning strategy use.

Table 4.1: The Descriptive Statistics of Vocabulary Learning Strategy Use

Strategies	Mean	SD	Rank	Strategy Use
Determination	3.23	1.16	1	Medium
Metacognitive	3.22	1.22	2	Medium
Memory	2.93	1.07	3	Medium
Cognitive	2.81	1.23	4	Medium
Social	2.26	0.94	5	Low
Overall VLS	2.91	1.13		Medium

As Table 4.1 demonstrates, determination strategies (M=3.23, SD=1.16) were most frequently used by Iranian EFL learners, followed by metacognitive (M=3.22, SD= 1.22), and memory (M=2.93, SD=1.07) strategies. Whereas, social strategies (M=2.26, SD=0.94) were less frequent among learners.

In order to validate the results and find the reasons for students’ perception of the usefulness of the strategies, semi-structured interviews were carried out. The findings of the interviews are presented in the Table 4.2 based on each interview question.

Table 4.2: Interview Findings

Questions	Findings
<i>Why do you indicate using determination strategies such as ‘guessing the meaning of words from the context’ and ‘using English-English dictionary’ most frequently than other strategies?</i>	<ul style="list-style-type: none"> • Easy to use and accessible at all times (Participants: B,G,H,J). • Techniques which are used since high school (Participants: A,D,E,F,I). • Useful for proficient learners (Participant: C)
<i>Metacognitive strategies were found to be the second most frequently used strategies. Why do you consider strategies such as ‘paying attention to words when someone is speaking English’ and ‘using the English language media’ to be useful in learning new vocabulary?</i>	<ul style="list-style-type: none"> • Enjoyable (Participants: B,D,E,F) • Effective as they maximize exposure (Participants: A,G,H,I) • Provide the opportunity to review what is previously learnt (Participant: C, J)

Table 4.2, Continued

Questions	Findings
<p><i>Why strategies such as ‘paying attention to English words when someone is speaking’, ‘using English language media’ and guessing from the context’ were the most frequently used strategies? How do you find them useful in learning new vocabulary?</i></p>	<p>paying attention to English words when someone is speaking</p> <ul style="list-style-type: none"> • Increase input (Participants: B,C,E,J) • More exposure (Participants: A,D,F,G,H,I) <p>Using English language media</p> <ul style="list-style-type: none"> • Accessible anywhere at all times (Participants: C,F,G) • Makes learning easier (Participants: A,D,E,J) • Increase motivation (Participants: B,H,I) <p>Guessing from the context</p> <ul style="list-style-type: none"> • Trained since high school (Participants: B,C,F,G,I,J) • Improves independent learning (Participants: A,D,E) • Provides engagement (Participants: H)
<p><i>Why do you sometimes find memory strategies which include memorization, making mental images or writing sentences useful in learning new vocabulary?</i></p>	<ul style="list-style-type: none"> • Useful in early stages of learning (Participants: A,E,F,H,I,J) • Not very practical in recalling the words (Participants: B,C,D,G)
<p><i>Cognitive strategies are sometimes used. Why strategies such as using flashcards, taking notes or repeatedly writing or saying a word do not help you in learning new vocabulary?</i></p>	<ul style="list-style-type: none"> • Time consuming and boring (Participants: G,H) • Lack of context (Participants: B,E,J) • Old fashion ways of learning (Participants: A,C,D,F,I)
<p><i>Why don't you favor or use social strategies much? Why don't you find strategies which involve group work and interacting with others useful in learning vocabulary?</i></p>	<ul style="list-style-type: none"> • EFL context of Iran (Participants: B,C,D,F,G,H,I,J) • Not a reliable way to learn vocabulary (Participant: E). • Not effective as they do not promote independent learning (Participant: A).

According to 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,

Participant B: Using a dictionary provides a definition, synonym/antonyms, example sentences and phrases, spelling, parts of speech and even the correct pronunciation of the words which is very effective and efficient...and nowadays you can have a very good dictionary installed on your cellphone.

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 are 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 like using the media as it increases motivation; effective as they maximize exposure to language and provide the opportunity to review or constantly hear what is previously learnt through word tests and watching movies. Therefore, activities such as group work, informal testing and reviewing what they have learnt needs to be encouraged as these activities can be carried out without teachers assistance which promotes learners' independence in learning.

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,

Participant C: *Through English language media, I can frequently hear the words...or let's say review what I have learnt which can be very effective...also, I can use the media anywhere at all times.*

On the other hand, in the EFL context of Iran which learners lack the necessary exposure to English through unconscious learning, conscious attention can compensate for this deficiency (Riazi & Rahimi, 2005). Furthermore, these strategies are concerned with more efficient learning by maximizing exposure to language (using English language media), increasing input through interaction with native speakers, providing positive reinforcement by testing oneself, making the best use of one's practice time by reviewing the new materials, and focusing on learning the most useful vocabulary by knowing when to skip a word that is not frequently used (Schmitt, 1997). 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 where the medium of instruction at universities is English, they need to take charge of their own learning to achieve the curriculum objectives.

According to what students reported in their interviews, memory strategies (M=2.93) are said to be useful for beginners as well 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 not effective in the communicative approach, as the institutes and universities are promoting communicative approach to learning. Also, the subjects of the study were proficient enough to employ these strategies, as one of the students mentioned,

Participant E: *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 everyone in all proficiency levels...especially advanced*

learners.

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, in Table 4.1 cognitive strategies with the mean of 2.81 were reported to be not effective as they are time consuming and there is a 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 mentioned by one student,

Participant J: Learning words in a context is way more effective than out of context...like flashcards or note books....these are traditional ways of learning words...maybe repeatedly writing the words or reviewing them using flashcards help you to learn a new word...but after a while it will be forgotten as there is not context in which the words are presented.

These strategies can be useful for the initial exposure to a new word but later 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. However, in a study by Sarani and Kafipour (2008) the researchers pointed out that the frequent use of cognitive strategies among EFL university students is not consistent with the communicative approach to learning which is required to be less dependent on the memorization of the materials.

As for social strategies (M=2.26), they were the least frequently used strategies among Iranian EFL learners. This could be due to the EFL context in Iran which does not provide the opportunity for people to use the language outside the class, thus, students lack training in interacting with others as a strategy to learn a language. However, one of the students said that,

Participant D: *Learners do not find the chance to speak or use the language outside the class...I never found it useful since we couldn't communicate outside the class using English...I am not used to it at all...but now that I am in Malaysia and I have more chances to use the language outside a formal class...I found out that social strategies can be very effective in learning a language.*

Since the subjects of this study have taken English courses in the EFL context of Iran, they also do not favor social strategies. According to Zarafshan (2002), Iranian students do not favor social strategies since collaborative and social learning is not promoted in the educational curriculum. Thus, this finding is in line with other studies in the context of Iran (Kafipour, Abdullah, & Hamzah, 2009; Kafipour & Hosseini Naveh, 2011; Karami & Barekat, 2012; Khoshsaligeh, 2009; Riazi & Rahimi, 2005).

Furthermore, based on the interview findings, social strategies are not considered to be a reliable way of learning new vocabulary, as compared to the use of a dictionary. Moreover, students did not find them effective for learning words as individual efforts to learn a language leads to better outcome.

Participant E: *I prefer to use the original sources like dictionaries which are accessible and reliable...what I mean is...you cannot rely on whatever people say regarding the meaning of words...let's say my classmate, what if he gives me the wrong meaning since he doesn't know it himself.*

As stated by Kafipour (2006), learning English in the EFL context of Iran is considered as an individual learning process where learners resist asking others' help when seeking the meaning of new words. Notwithstanding the fact, that Iranian EFL students are known as passive learners as they do not participate actively in learning activities. This inactivity, however, is due 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 passive learners. This finding was similar to the findings of Amirian and Heshmatifar (2013) and Sahbazian (2004). In these studies, the researchers highlighted the effect of EFL environment on learners' use of social strategies, since such environment does not provide the opportunity for consolidating the meaning of words through communication.

4.1.2 The Most and the Least Frequent Strategies

The results of the descriptive analysis revealed that 6 strategies (15%) were used at a high frequency level. The most commonly used strategy among participants is 'paying attention to English words when someone is speaking English' with the mean score of 4.08 and standard deviation of 0.93. As reported by the participants, 25 (61%) strategies were in the medium range of use, and 10 (24%) strategies being the least commonly used. The least commonly used strategy is 'studying the words with my classmates' (M=1.88, SD=0.77). Table 4.3 demonstrates the most commonly used vocabulary learning strategies among Iranian students.

Table 4.3: The Most and the Least frequently Used Vocabulary Learning Strategies of Iranian EFL Learners

Most Frequently used Strategies				
Item	Category	Strategies	Mean	SD
41	MET	Pay attention to English words when someone is speaking English	4.08	0.93
37	MET	Use English-language media (songs, movies, the internet)	3.94	0.93
5	DET	Guess the meaning of words from context	3.89	0.79
7	DET	Use an English-English dictionary	3.59	1.05
17	MEM	Connect the word to other words with similar or opposite meanings	3.55	0.79
20	MEM	Use new words in sentences	3.5	1.06
Least Frequently used Strategies				
Item	Category	Strategies	Mean	SD
38	MET	Test myself with word tests	2.5	1.22
40	MET	Skip or pass new words	2.5	0.98
9	SOC	Ask my classmates for the meaning	2.42	0.86
33	COG	Use flashcards to record new words	2.24	1.14
8	SOC	Ask the teacher to give me the definition or translation of a word	2.15	0.86
11	SOC	Ask the teacher to check my definition	2.11	0.96
29	MEM	Use physical action when learning a word	2	0.93
13	MEM	Draw a picture of the word to help remember it	1.97	0.91
35	COG	Put English labels on physical objects	1.94	1.09
10	SOC	Study the word with my classmates	1.88	0.77

As can be seen from Table 4.3, the most frequently used strategy among Iranian students is ‘paying attention to English words when someone is speaking English’ (MET) with the mean of 4.08, followed by ‘using English-language media (songs, movies, the internet)’ (MET, M= 3.94) and ‘guessing the meaning of words from context’ (DET, M= 3.89). On the other hand, ‘study the words with my classmates’ is the least frequent strategies among Iranian students (SOC, M= 1.88). 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) are 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, also it provides the opportunity to correct one's mistakes and learn how to use the language correctly. One possible explanation could be that in the ESL context such as in Malaysia, learners have more exposure to language which enables them to consciously manipulate the language. According to Oxford (2003), interacting with people who are competent in a language internalizes metacognitive strategies which involve direct manipulation of the language that is being learned. Also, paying attention to someone speaking increases input which will lead to acquisition of language. As Krashen (1985) stated, in order for a language to be acquired there should be sufficient 'comprehensible input'. Thus, Iranian students in Malaysia are exposed to sufficient input required to learn the language, either in a class or outside.

On the other hand, the use of English language media such as songs, movies and internet as the second most frequently used strategy, facilitates learning by increasing motivation in learners which leads to internalization of more input. In other words, in an EFL 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. Furthermore, these materials are accessible at all times and they provide the context in which the words are used. As Schmitt (1997) pointed out, this strategy involves efficient learning as it provides maximum exposure to language through endless resources available worldwide.

Furthermore, guessing the meaning of words from the context as the third most frequently used strategy among learners, improves learner autonomy since by guessing the meaning from the context you are relying on your own knowledge without referring to a dictionary or asking the teacher for the definition. In addition, guessing the meaning by referring to the context engage learners in the process of learning as the students should rely on their background knowledge to infer the meaning of words.

However, in the work of Asgari and Mustapha (2011) on Malaysian students, the researchers found that the same method is practiced by the teachers in English language classes through the use of English newspapers which improves the process of learning and assists learners in acquiring new vocabulary. According to Oxford (1990), guessing the meaning from the context assists learners to understand and use the language even though their lexical and grammatical knowledge might be limited. As stated by Schmitt (1997), guessing from the context has three prerequisite stages. The first stage emphasizes learners' level of language proficiency in order to analyze a word based on its orthographical form. Therefore, the infrequent use of this strategy among Iranian students could be due to their competency in English.

4.1.3 Frequency of Strategy Use

According to Oxford (1990), the frequency of learners' strategy use is classified as high, medium and low. High strategy users have a mean of 3.5 and over. The mean score of medium strategy users range between 2.5-3.5, and low strategy users have a mean of 2.5 and under. As the results demonstrate, Iranian EFL learners are moderate strategy users, which according to Oxford (1990) the mean score of their overall strategy use range from 2.5-3.5. This, however, is

consistent with the findings of Aliakbari and Hayatzadeh (2008), Hamzah, Kafipour, and Abdullah (2009), Jafari and Ajideh (2012), Kafipour and Hosseini Naveh (2011) and Rahimi, Riazi, and Saif (2008) in the context of Iran. Moreover, all categories of vocabulary learning strategies were reported to be at a medium level, except social strategies which were at a low level. This could be because learners were unfamiliar with different vocabulary learning strategies which were not incorporated into their educational curriculum. Besides, it might be possible that teachers are not aware of the usefulness of these strategies in certain situations to maximize students' learning. However, learners' opinion toward the effectiveness of the strategies makes them to choose certain strategies that are suitable for their learning, thus focusing on those and ignoring the others. According to Hamzah et al. (2009), a group of 125 TEFL undergraduate students showed a medium level of strategy use in all categories of vocabulary learning. The researchers concluded that their subjects had taken 'study skills' course in their first semester which could be the reason why they were somehow familiar with some learning techniques and strategies.

However, as Kafipour (2010) pointed out in his research, some of the strategies were not reported by the subjects in their interviews and journal writings. His subjects mentioned that they felt shy to report some strategies since they believed that those techniques were incorrect methods of learning words. Also, they were unaware that they were employing some important strategies in recalling words. In other words some strategies are unconsciously employed by the learners who did not consider them as learning strategies.

As stated by Fan (2003), little attention is given to vocabulary in the Asian university curriculum. This situation is 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 the vocabulary. Furthermore, the same results can be seen among other Asian EFL/ESL learners (Asgari & Mustapha, 2011, in Malaysia; and Alsadik, 2014, in Iraq). In both studies the researchers argued that students' medium strategy use was due to their unfamiliarity with various vocabulary learning strategies. However, Asgari and Mustapha (2011) mentioned that learners' unawareness of different strategies resulted in their frequent use of dictionaries and rote memorization. Accordingly, Nation (2001) suggested a comprehensive strategy training to teach students when and how to use each strategy, as well as, the ways to incorporate a group of strategies to maximize students' achievement in learning.

4.2 Second Research Question

What are the differences in vocabulary learning strategy use between proficient and less proficient EFL students?

4.2.1 Types of Strategies Used among Proficient and Less Proficient EFL Students

To find the difference in vocabulary learning strategy use between two groups of proficiency, both descriptive statistics and an independent sample t-test was run. According to Dornyei (2001), a t-test is needed to find that the difference in any two sets of scores reflects any 'real' difference, and check whether the results are generalizable or the scores are likely to be an artefact of random variation (p. 215).

Close study of the data (Table 4.4) shows that the use of strategies does not vary much among the two groups.

Table 4.4: Descriptive Statistics for the Strategy Use among Proficient and Less Proficient Group

Less proficient group			
Strategies	Mean	SD	Rank
Metacognitive	3.26	0.59	1
Determination	3.17	0.52	2
Cognitive	2.97	0.70	3
Memory	2.92	0.50	4
Social	2.28	0.54	5
Overall VLS use	2.94	1.11	
Proficient group			
Strategies	Mean	SD	Rank
Determination	3.29	0.50	1
Metacognitive	3.17	0.63	2
Memory	2.94	0.42	3
Cognitive	2.61	0.68	4
Social	2.24	0.62	5
Overall VLS use	2.89	1.21	

As Table 4.4 reveals, less proficient learners use vocabulary learning strategies more frequently than the other group ($M= 2.94$), with metacognitive, cognitive and social strategies having higher mean scores as compared to the proficient group. The highest mean of strategies for the proficient group belongs to determination ($M=3.29$), followed by metacognitive ($M=3.17$) and memory strategies ($M=2.94$) while for the less proficient group, the highest mean belongs to metacognitive ($M=3.26$), determination ($M=3.17$) and cognitive ($M=2.97$) strategies, respectively. The least frequently used strategy among two groups of proficiency belongs to social strategies, with the mean of 2.28, and 2.24 for the less proficient and the proficient group, respectively. This is in accordance 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. Table 4.5 shows the most frequent strategies employed by learners in both groups.

Table 4.5: Most frequently Used Vocabulary Learning Strategies of Iranian EFL Learners of Proficient and Less Proficient Students

Proficient Group				
Item	Category	Strategies	Mean	SD
7	DET	Use an English-English dictionary	4.1	0.86
37	MET	Use English-language media (songs, movies, the internet)	4.1	1.01
41	MET	Pay attention to English words when someone is speaking English	4.03	1.02
5	DET	Guess its meaning from context	4	0.76
20	MEM	Use new words in sentences	3.66	1.11
17	MEM	Connect the word to other words with similar or opposite meanings	3.55	0.83
16	MEM	Remember the words that follow or precede the new word	3.52	0.83
Less Proficient Group				
Item	Category	Strategies	Mean	SD
41	MET	Pay attention to English words when someone is speaking English	4.11	0.88
5	DET	Guess its meaning from context	3.81	0.81
37	MET	Use English-language media (songs, movies, the internet)	3.81	0.84
17	MEM	Connect the word to other words with similar or opposite meanings	3.54	0.77
34	COG	Take notes or highlight new words in class	3.51	0.99

As Table 4.5 indicates, the 37 students in the less proficient group and 29 in the proficient group reported very similar preferences in using vocabulary learning strategies. As can be seen from the table above, both groups preferred certain type of strategies over the others, such as using English-language media (MET), paying attention to English words when someone is speaking English (MET), guessing the meaning of words from the context (DET) and connecting

the word to other words with similar or opposite meanings (MEM). According to Oxford (1990), strategies with the mean of 3.5 and over are highly frequent, thus in the proficient group 7 strategies out of 41 are more frequently used whereas, less proficient group of learners only use 5 strategies most frequently.

Furthermore, the proficient group of learners use an English-English dictionary (DET, M= 4.1) and 'English-language media (songs, movies, the internet)' (MET, M= 4.1) most frequently, followed by 'Paying attention to English words when someone is speaking English' (MET, M= 4.03) and 'Guessing its meaning from context' (DET, M= 4). On the other hand, less proficient group, use 'Paying attention to English words when someone is speaking English' (MET) with the mean of 4.11, most frequently than any other vocabulary learning strategies.

Moreover, the following strategies are among the most frequently used strategies in both groups of proficiency: Using English-language media (songs, movies, the internet) (MET), Connecting the word to other words with similar or opposite meanings (MEM), Guessing its meaning from context (DET), and Paying attention to English words when someone is speaking English (MET).

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 as they are proficient English learners who have adequate knowledge of English and are able to learn the language independently. Moreover, from the researcher's observation, proficient learners used monolingual dictionaries (English-English dictionary) more frequently than other strategies. According to Schmitt (1997), the use of determination strategies makes learners to 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 the previous studies (Amirian & Heshmatifar, 2013; Asgari & Mustapha, 2011; Hamzah et al., 2009). In a study by Asgari and Mustapha (2011), the researchers concluded that their frequent use of monolingual dictionaries is due to the new educational 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.

Furthermore, the reason for the frequent use of metacognitive strategies among less proficient learners could be that 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 proficient learners. Based on the interview findings, metacognitive strategies such as the 'use of English language media' was reported to be effective as it provides the opportunity to constantly review what is previously learned, which maximizes exposure to language.

Moreover, the results of the descriptive analysis showed that less proficient learners use vocabulary learning strategies more frequently than the other group, with metacognitive, cognitive and social strategies having higher mean scores as compared to the proficient group. This is consistent with the findings of (Jafari & Ajideh, 2012; Jafari & Kafipour, 2013). For example, in the study carried out by Jafari and Kafipour (2013), the results revealed that basic learners used vocabulary learning strategies more frequently than the other two groups (intermediate and advanced). However, the only significant difference was seen in learners' use

of social, memory and cognitive strategies with basic learners having the highest mean score. The researchers concluded that this could be due to being in their first stages of language learning in which they feel the need to learn many words, thus they try to employ various techniques of learning vocabulary. On the other hand, the advanced learners were not willing to use these strategies very often as they tend to employ techniques which are more useful for them. In other words, when learners gain more knowledge of the language they avoid using cognitive and memory strategies which include repetition and mechanical ways of learning words. On the other hand, in some studies (Karami & Barekat, 2012; Lee & Oxford, 2008; Shmais, 2003) it was found that learners' vocabulary learning strategy use was positively correlated to their level of language proficiency.

4.2.2 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 4.6).

Table 4.6: Differences in VLS Use among the Proficient and Less Proficient learners

Vocabulary Learning Strategies		Mean	F	P	N
Determination	Less Proficient	3.17	.68	.36	37
	Proficient	3.29			29
Social	Less Proficient	2.28	.52	.78	37
	Proficient	2.24			29
Memory	Less Proficient	2.92	.5	.88	37
	Proficient	2.94			29
Cognitive	Less Proficient	2.97	.68	.04*	37
	Proficient	2.61			29
Metacognitive	Less Proficient	3.26	.81	.54	37
	Proficient	3.17			29

Table 4.6, Continued

Vocabulary Learning Strategies		Mean	F	P	N
Overall VLS Use	Less Proficient	2.94	.59	.60	37
	Proficient	2.89			29

Notes. * $P < 0.05$

F = Levene's Test for Equality of Variances; determines if the variability between scores is about the same or different for the two conditions.

P = Sig. (2-tailed) value; determines whether the two condition means are statistically different.

N = Number of students in each group.

The results of the independent samples t-test (Table 4.6) shows that there is no significant difference between learners' use of vocabulary learning strategies with respect to their language proficiency ($p = .60$, $p > .05$). Furthermore, there is no significant difference ($p > .05$) in the use of determination ($p = .36$), social ($p = .78$), memory ($p = .88$) and metacognitive ($p = .54$) strategies by Iranian EFL learners of two different proficiency levels. However, it can be concluded that Iranian students in two different language proficiency groups would not employ different strategies when learning English vocabulary. A good explanation could be that Iranian students in UM pay less attention to employing various types of vocabulary learning strategies in classes since their focus should be more on the courses that they take rather than the language in which the courses are taught. Thus, despite their proficiency in English, they rely on the strategies that are less dependent on the help of a teacher or a classmate, and which are easily accessed. However, the only significant difference among two groups of learners was seen in their use of cognitive strategies ($p < .05$, = .04) (Table 4.7).

Table 4.7: The Difference between Two Groups of Learners in their Use of Cognitive Strategies

Proficient Group			
Rank	Strategies	Mean	SD
1	Take notes or highlight new words in class	3.34	0.97
2	Repeat the words aloud many times	2.9	1.14
3	Make lists of new words	2.83	1.31
4	Write the words many times	2.72	1.16
5	Keep a vocabulary notebook	2.55	1.3
6	Use flashcards to record new words	2.1	1.23
7	Put English labels on physical objects	1.79	1.05
Less Proficient Group			
Rank	Strategies	Mean	SD
1	Take notes or highlight new words in class	3.51	0.99
2	Make lists of new words	3.41	1.21
3	Write the words many times	3.27	1.02
4	Keep a vocabulary notebook	3.14	1.13
5	Repeat the words aloud many times	3.08	1.04
6	Use flashcards to record new words	2.35	1.06
7	Put English labels on physical objects	2.05	1.13

Based on the mean scores of the cognitive strategies presented in the Table (4.7) above, less proficient learners use cognitive strategies more often than the other group.

Furthermore, both ‘taking notes or highlighting new words in class’ and ‘ putting English labels on physical objects’ are the most and the least frequently used strategies among the two groups. Taking notes or highlighting new words in class is a technique that Iranian students are used to as one of the ways of learning new English vocabulary at school and university since taking notes allows the learners to organize their own structure of learning new words, as well as providing more exposure for revision during examination. However, in a study by Karami and Barekat (2012), the researchers found that cognitive strategies were most frequently used among all proficiency groups, indicating this as an experience gained at school where words had to be

revised for exam. Written and verbal repetition, taking notes and using flashcards are not favored much among learners in the communicative era but according to Schmitt (1997), these strategies are employed frequently by many learners to reach higher levels of language proficiency. In contrast, according to Gu and Johnson (1996), cognitive strategies are positively related to language proficiency, which means that more proficient learners employ cognitive strategies more frequently.

4.3 Third Research Question

What is the difference in terms of critical thinking scores between proficient and less proficient students?

4.3.1 Critical Thinking Scores of Proficient and Less Proficient Students

To compare the critical thinking score of Iranian EFL learners in two different groups of language proficiency, both descriptive statistics and an independent samples t-test was run. As mentioned before, a t-test is used to find that the difference in any two sets of scores reflects any ‘real’ difference, and check whether the results are generalizable or the scores are likely to be an artefact of random variation (Dornyei, 2001, p. 215). Table 4.8 presents the descriptive statistics for the five sub-skills of critical thinking among two groups of proficiency.

Table 4.8: Descriptive Statistics for the Critical Thinking sub-skills among Proficient and Less Proficient Group

CT Sub-skills	Less Proficient Group				Proficient Group			
	Mean	SD	Min	Max	Mean	SD	Min	Max
Evaluation	4.68	1.7	2	8	5.1	2.11	1	11
Analysis	3.54	1.8	1	7	3.62	1.63	0	7
Inference	4.68	1.62	1	7	4.97	1.55	3	8
Deductive Reasoning	6.19	2.01	2	11	6.83	2.36	3	12
Inductive Reasoning	4.97	1.88	2	9	5.24	1.96	2	10
Overall CT	12.89	3.37	6	20	13.69	3.97	5	23

Notes. Min = Minimum scores; Max = Maximum scores

The overall CT test score ranges from 0-34 with higher scores representing stronger critical thinking ability. As seen in Table (4.8) above, the proficient learners scored higher than the less proficient group with the mean of 13.69, and the highest score of 23 out of 34. Moreover, based on the descriptions of the CCTST scores (refer to Table 3.1), the critical thinking ability of both proficient and less proficient learners is at a moderate level indicating that learners “have the potential for skills related challenges when engaged in reflective problem-solving and reflective decision making associated with learning or employee development” (Facione, 2013). It appears disturbing that, though the participants of the current study were either PhD or Master students they lacked the necessary critical thinking abilities.

Furthermore, the descriptive statistics among two groups of proficiency demonstrated that the proficient learners scored higher than the less proficient group in each of the critical thinking sub-skills which indicates the impact of learners’ language proficiency on critical thinking ability. This is congruent with the findings of Ismail, Abdul Aziz, and Husin (2007). In

their study, participants with ‘excellent’ language ability scored higher than ‘low, average, and high’ proficient students, which show that the English language ability of students might affect their scores in the test of critical thinking.

Moreover, regarding the sub-categories of critical thinking, both group of learners scored higher in the deduction skill, which indicates that the subjects did not have much difficulty in evaluating and understanding the credibility of the sentences (Facione, 2011) as compared to other critical thinking skills. On the other hand, the skill of analysis achieved the least score among both groups of proficiency which shows students’ inability to identify the intended and actual inferential relationships among statements, questions, concepts, descriptions, or other forms of representation intended to express belief, judgment, experiences, reasons, information, or opinions (Facione, 2011).

4.3.2 Differences in Critical Thinking Scores of Proficient and Less Proficient Students

To see whether there is a significant difference between critical thinking score of the two groups, an independent sample t-test was run (Table 4.9).

Table 4.9: Differences in CCTST Results between Proficient and Less Proficient Students

CT Sub-Skills		Mean	F	P	N
Evaluation	Less Proficient	4.68	.91	.37	37
	Proficient	5.1			29
Analysis	Less Proficient	3.54	.43	.85	37
	Proficient	3.62			29
Inference	Less Proficient	4.68	.7	.46	37
	Proficient	4.97			29
Deductive Reasoning	Less Proficient	6.19	.69	.24	37
	Proficient	6.83			29
Inductive Reasoning	Less Proficient	4.97	.53	.57	37
	Proficient	5.24			29

Table 4.9, Continued

CT Sub-Skills		Mean	F	P	N
Overall CT	Less Proficient	12.89	.41	.38	37
	Proficient	13.69			29

Notes. *F*= Levene's Test for Equality of Variances; determines if the variability between scores is about the same or different for the two conditions
P= Sig. (2-tailed) value; determines whether the two condition means are statistically different
N= Number of students in each group

The results of the independent samples t-test shown in Table 4.9 demonstrate that the independent variable of language proficiency did not have a significant effect on learners' overall critical thinking score $t(66) = 0.38, p > 0.05$.

Although, the mean score of the proficient learners in each of the critical thinking sub-skills were higher than the other group of learners, there was not a significant difference between these two groups in terms of the following CT sub-skills:

Evaluation, $t(66) = 0.37, p > 0.05$; Analysis $t(66) = 0.85, p > 0.05$; Inference $t(66) = 0.46, p > 0.05$; Deductive reasoning $t(66) = 0.24, p > 0.05$; Inductive reasoning $t(66) = 0.57, p > 0.05$.

In other words, the results demonstrate that there is no significant difference in critical thinking ability of learners in two different proficiency groups. This, however, is in contrast with the findings of Grosser and Nel (2013), Keihaniyan (2013), and Rashid and Hashim (2008). Keihaniyan (2013) examined the critical thinking ability of Iranian undergraduate students and its relation to language proficiency. The results revealed a significant but weak relationship between critical thinking ability of learners and language proficiency. She argued that the weak relationship between the two variables indicates the partial contribution of language proficiency to learners' ability to think critically. This supports what Hakuta (1986) has proposed, according to which, language is not exclusively responsible of defining one's thinking rather it operates as

one of the elements which assists in shaping individual's thought. In contrast, Rashid and Hashim (2008), found that critical thinking ability of the students were positively correlated with their English language proficiency implying that learners' critical thinking ability will improve if they are proficient in English. In the same vein, Grosser and Nel (2013) suggested that the students who participated in their study need assistance to enhance their thinking ability through consistent practicing since they were not aware of the difficulties in their thinking. Moreover, they claim that the reason for students' difficulties in applying their critical thinking could be due to the impact of their weak academic English language proficiency. Therefore, it can be concluded that the poor performance of Iranian students in the test of critical thinking could be due to the instructional approaches in Iran which do not train the students to think critically using the language, although they are proficient English learners.

4.4 Fourth Research Question

To what extent are learner's vocabulary learning strategies related to their critical thinking ability?

The fourth research question seeks to establish whether there is any significant relationship between learners' vocabulary learning strategy use and critical thinking ability. In order to investigate this relationship, the statistical technique of Pearson-Moment correlation was used. This technique allows us to look at the two variables and evaluate the strength and direction of their relationship or association with each other (Dornyei, 2001, p. 223). The strength of the relationship is expressed as a correlation coefficient between -1 and +1. Correlations with positive values close to 1.0 imply strong relationships whereas values close to 0.0 imply weak (or no) relationships. The analysis of the data through Pearson moment

correlation revealed the following results as can be seen in Table 4.10.

Table 4.10: Correlation Coefficient of Critical Thinking and Individual Categories of Vocabulary Learning Strategy

	Overall VLS	Determination	Social	Memory	Cognitive	Metacognitive
CT						
Pearson Correlation	-0.175	-0.131	-0.16	-0.113	-0.103	-0.129
Sig (2-tailed)	0.159	0.294	0.201	0.365	0.41	0.303
N	66	66	66	66	00	66

Notes. Sig. (2-tailed) value: $> .05$; determines whether there is a statistically significant correlation between the two variables under study, i.e. vocabulary learning strategies and critical thinking ability.

The results from Table 4.10 reveal that there is no statistically significant relationship between learners' scores on critical thinking skills test and their use of vocabulary learning strategies ($r(66) = -0.175, p > .05$) in general, or any of the individual categories of vocabulary learning strategies:

Determination ($r(66) = -0.131, p = .294$); Social ($r(66) = -0.16, p = .201$); Memory ($r(66) = -0.113, p = .365$); Cognitive ($r(66) = -0.103, p = .41$); Metacognitive ($r(66) = -0.129, p = .303$).

In other words, this study investigates the relationship between VLS use and CT ability of the participants to find out whether learners' use more strategies as their critical thinking ability increases.

H0: There is no relationship between learner's vocabulary learning strategy use and their critical thinking ability.

Thus, based on the findings from Table 4.10, the null hypothesis is retained and it was found to be no relationship between participants' vocabulary learning strategy use and their critical thinking ability. This indicates that learners do not apply their thought critically while using strategies for learning vocabulary. However, this proves the fact that higher level of thinking is not yet incorporated into Iran's educational curriculum, since as Moon (2008) states, university students will become critical thinkers if critical thinking is clearly expressed in higher education. Although, the subjects of the study are Iranian students studying in Malaysia, their critical thinking ability is not different from that of their Iranian counterparts studying in Iran. This might indicate that improving critical thinking ability of students is not yet fully incorporated in the Malaysia educational curriculum.

Furthermore, critical thinking is considered as a factor contributing to the success of language learners since learning a foreign/second language takes a good deal of flexibility and the use of higher order thinking skills (Liaw, 2007). In other words, learners can enhance their language performance by applying critical thinking into their process of language learning.

Furthermore, the results are in contrast with the findings of (Fahim, Bagherkazemi, & Alemi, 2010; Fahim & Komijani, 2010; Hosseini, Bakhshipour Khodaei, Sarfallah, & Dolatabadi, 2012; Nikoopour, Amini Farsani, & Nasiri, 2011). In these studies, the results revealed a significant relationship between critical thinking ability of students and different aspects of language learning. Nikoopour, Amini Farsani and Nasiri (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 learning strategies can improve students' way of thinking, thus, critical thinking should be implemented into

language learning textbooks. In the study by Fahim and Komijani (2012), the researchers aimed at identifying the relationship between learners' critical thinking ability, vocabulary strategies and vocabulary knowledge. 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.

Unfortunately, in Iran's educational system where teaching is based on a traditional teaching framework, students are not trained to be a critical thinker. 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 that are loaded with different materials. Moreover, students' ideas are being ignored and they are not given a chance to express themselves (Fahim & Ahmadian, 2012), thus, they never acquire the necessary thinking skills. Since the teachers themselves were trained in this system, they cannot take their students beyond what they themselves are, thus another generation of passive individuals is brought up.

4.5 Summary of the Chapter

This chapter presented the analysis and interpretation of the findings according to each research question. Regarding the research objectives, the present study investigated the relationship between learners' critical thinking ability and their vocabulary learning strategies, as well as identifying the type of vocabulary learning strategies that learners employ. Furthermore,

proficient and less proficient students were examined by looking into their choices of vocabulary learning strategies and their thinking ability.

The results of the descriptive analysis regarding the type of strategies used by Iranian students indicated that the most frequently used strategies were determination strategies followed by metacognitive and memory. On the other hand, social strategies were found to be the least frequent among the students. Furthermore, the results revealed that six strategies were employed at a high frequency level with 'paying attention to English words when someone is speaking English' having the highest mean score followed by 'using English language media' and 'guessing the meaning of words from context'. On the other hand, the three least frequently used strategies were reported to be 'drawing a picture of the word to help remember it', 'putting English labels on physical objects' and 'studying the words with my classmates'.

Regarding the difference in strategy use between proficient and less proficient students, the results of the independent sample t-test indicated no significant difference. However, the only difference among two groups of learners was seen in their use of cognitive strategies.

In addition, another independent sample t-test was run to compare the critical thinking score of Iranian EFL learners in two groups of proficient and less proficient students. The results showed no significant difference between learners' critical thinking score with respect to their level of language proficiency. On the other hand, the results from of the Pearson moment correlation demonstrated that there was no statistically significant relationship between learners' critical thinking ability and vocabulary learning strategies.

CHAPTER V

CONCLUSION AND IMPLICATIONS

5.1 Introduction

The present study aimed at identifying the type of strategies that Iranian students employ in learning vocabulary, as well as examining proficient and less proficient students use of vocabulary learning strategies and critical thinking ability. In addition, the relationship between students' critical thinking ability and vocabulary learning strategies were investigated.

As it was mentioned earlier, the role of critical thinking is emphasized in language learning, where the reasons behind the success and failure of EFL learners have provoked researchers to examine different aspects of the process. Thus, enhancing learners' critical thinking ability and managing their ways of thinking may have significant impact on learners' overall language learning. In other words, improving learners' 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 the language.

The findings of the study can be significant since identifying the type of strategies that students employ will help them overcome the difficulties they might come across in learning lexical items, and also develop those strategies that motivates them and leads to becoming independent learners. Simultaneously, investigating learners' vocabulary learning strategies in relation to their thinking ability helps in recognizing different aspects about their language learning as critical thinking influences students' decision and choices of learning strategies in the process of learning. This final chapter presents a summary of the research findings followed by the implications of the study, and recommendations for future research.

5.2 Summary of the Research Findings

The findings of the statistical analyses for each research question were presented in the previous chapter. The section presents a summary of the findings (Figure 5.1).

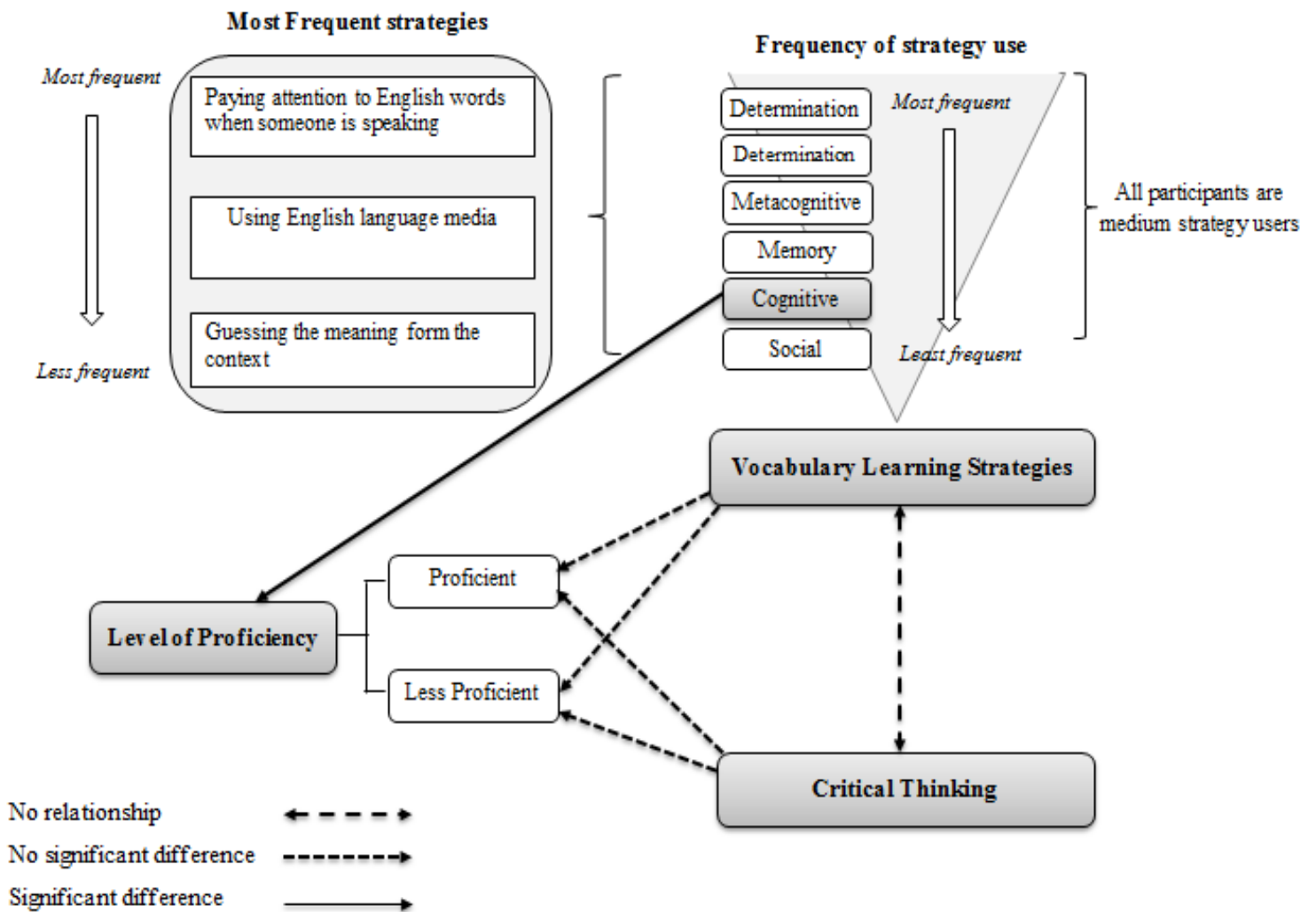


Figure 5.1: Summary of the Research Findings

As it was argued in the present study, vocabulary is an important part of a language and vocabulary learning is considered as an indispensable part of foreign or second language learning. For this purpose, learners should be equipped with the necessary vocabulary learning strategies to improve their knowledge of L2 vocabulary. The results of the vocabulary learning strategies questionnaire indicated that the most frequently used strategies among Iranian students studying in university Malaya were determination strategies followed by metacognitive and memory. However, social strategies were found to be the least frequently used among the students.

Regarding the findings of the study, the use of determination strategies assists learners in discovering the meaning of words without relying on other peoples' help, which could be the reason for its frequent use among students, as the subjects of the study are learners who are able to learn the language independently. On the other hand, the infrequent use of social strategies indicates the effect of EFL environment on learners' use of these strategies, since such environment does not provide the opportunity for consolidating the meaning of words through communication. In addition, based on the overall mean score of vocabulary learning strategy use, the subjects of this study were reported to be medium strategy users.

Furthermore, the results of the descriptive analysis revealed that six strategies were employed at a high frequency level with 'paying attention to English words when someone is speaking English' having the highest mean score followed by 'using English language media' and 'guessing the meaning of words from context'. On the other hand, the three least frequently used strategies were reported to be 'drawing a picture of the word to help remember it', 'putting English labels on physical objects' and 'studying the words with my classmates'.

The results of the independent sample t-test indicated that there was no significant

difference between Iranian students' use of vocabulary learning strategies in terms of their language proficiency. However, the only significant difference among the two groups of learners was seen in their use of cognitive strategies. This indicates the positive effect of using cognitive strategies on language proficiency as less proficient learners employ these strategies more frequently to reach higher levels of proficiency (Schmitt, 1997), even though it is not favored much in the communicative era.

On the other hand, another independent sample t-test was run to compare the critical thinking score of Iranian EFL learners in two different groups of language proficiency. The results showed that there was no significant difference between learners' critical thinking score with respect to their level of language proficiency. Regarding the critical thinking ability of Iranian students, it can be said that their poor performance in the test of critical thinking could be due to Iran's educational curriculum which lacks instruction for thinking critically using the language.

Moreover, the results from of the Pearson moment correlation demonstrated that there was no statistically significant relationship between learners' critical thinking score and their overall use of vocabulary learning strategies or any individual categories of vocabulary learning strategies. This insignificant relationship indicates that learners do not use their thought critically while using strategies for learning vocabulary. This however, results in using certain types of strategies, notwithstanding the fact that critical thinking improves independent learning of a language through the wide use of strategies necessary for effective learning. For instance, applying critical thinking in the process of learning a language allows the students to make use of a variety of strategies since they can evaluate and question their ways of learning a language.

5.3 Implications of the Study

This study aimed to investigate the relationship between students' critical thinking ability and vocabulary learning strategy. In this regard, there are certain implications of this study which will be discussed below.

5.3.1 Pedagogical Implications

As for the pedagogical implications, this study shows the importance of strategies in learning vocabulary by providing reasons for learners' choices of certain strategies which they find important in enhancing their knowledge of vocabulary. Furthermore, language instructors should provide learners with the necessary learning strategies and assist them in becoming more responsible to achieve their language learning objectives. As a result, teachers will be able to train students to choose the appropriate strategies that best suits their language needs. In addition, teachers should design useful activities and assign relevant tasks for students to improve their vocabulary. Thus, learning objectives can be gained when students are provided with strategy based training. Eventually, learners will gain independence in dealing with the target language.

Moreover, based on the results, learners' lack of interest in using social strategies should be closely considered by syllabus designers, since one of the important features of a communicative language class is for learners to use the language in interacting with other people 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.

In addition, this study reveals the important role of critical thinking in improving learners' autonomy in managing their own process of learning, as well as emphasizing the role of

language teachers in creating opportunities for students to actively participate in activities which promote their critical thinking skills. Although, relying on textbooks is not supported in the communicative language learning context, implementing aspects of critical thinking skills in language textbooks can foster these abilities which can be beneficial for both teachers and students. For instance, certain activities should be designed at the end of each chapter or unit to lead the students towards discussing, questioning and reflecting upon what they learnt throughout the unit. Therefore, teachers have the most effective role in turning the language classrooms into a thought provoking context where learners find the opportunity to reflect upon different issues, raise questions, take part in discussions along with managing and evaluating their process of learning.

Moreover, the results indicated no significant relationship between critical thinking and vocabulary learning strategies since the educational system in countries like Iran are mostly teacher-oriented and centered around memorization of the taught materials. Thus, such traditional teaching methods need to be replaced by the learner-centered approaches in order for these approaches to develop students' critical thinking skills. In this regard, curriculum designers are recommended to constantly review the educational curricula to make sure that different skills 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 fits their language learning objectives.

On the other hand, critical thinking is the process of reaching for an answer rather than the answer itself. Thus, it is important for student to be trained in order to be able to analyze different situations presented in the test. In this regard, there should be training sessions prior to gathering the data regarding different skills of critical thinking so that the students know what

type of questions they might encounter in the test, as some questions require total comprehension before answering. Notwithstanding the fact, that lack of comprehension might affect students' responses to the test.

5.3.2 Methodological Implications

Although it is attempted in this study to select a population that best represents Iranian postgraduate students in Malaysia, due to the limited resources available to the study, the opportunity for the researcher to travel to other cities in various parts of the country was not an option, so the participants in the study were only selected from among the Iranian postgraduate students in university of Malaya. Therefore, the findings of the study will be limited to the target population of Iranian postgraduate students studying in university of Malaya and should not be generalized.

Moreover, the participants were studying in different fields; obviously this can affect the way a person manages activities like learning. In addition, the small scale sampling of the subjects under study may not be the representative of all the Iranian students studying in Malaysia. Therefore, careful consideration must be taken for generalizing the reported findings.

Regarding the qualitative part of the study, the interviews were carried out to support students' reasons for choosing certain types of vocabulary learning strategies. Thus, to make the findings more reliable, an interview which focuses on the critical thinking ability of students would be helpful in finding out more justifiable reasons for their weak performance in the test of critical thinking.

During the data collection, the researcher was not able to gather all the subjects in one place to control what might affect their responses to the test of critical thinking. Thus, their

responses to the test might not reflect their true ability in thinking critically, as answering the critical thinking test requires a lot of focusing as CCTST is intended to be challenging and needs a lot of cognitive effort (Facione, 2013). In addition, the CCTST which was employed to measure the critical thinking ability of the students is to some extent culture-biased. According to Rode (2005), the change of context in translating an instrument can change the meaning of the questions as the items are culturally different. Thus, translating a test might influence the scores of the respondents. For example, in the translated version of the CCTST, in questions 20 and 21 drinking beer is changed to smoking cigarettes as drinking is prohibited in Iran. Therefore, the obtained scores might not be the manifestation of students' actual ability in thinking critically as this test is designed in America and presents the Western culture.

With regard to the second and third research question, proficient and less proficient students were examined by looking into their choices of vocabulary learning strategies and their thinking ability. Thus, their level of proficiency was determined by the scores obtained in the IELTS test. Since all the postgraduate students need to attain a score in the test of IELTS, there is not much difference between students in terms of their proficiency in English.

5.4 Recommendations for Future Research

Based on the obtained results and the implications of the study, numerous suggestions can be made for further research. Given that this study is the first endeavor in the literature that tried to find out the relationship between critical thinking and vocabulary learning strategy use of Iranian students studying abroad it can be considered as a prelude to the beginning of other studies.

With regard to the methodological implications mentioned earlier, first, this study was conducted on a small scale of participants, thus more candidates and a monitoring of the

homogeneity of the participants regarding their field of study and level of education will reveal more accurate results in relation to the type of strategies they use and their ability in thinking critically.

Second, the focus of the study was on Iranian students in University of Malaya, therefore a replication of the study with students at different universities might yield more significant results as universities have different ways of approaching the educational objectives. This, however, might affect students' reasons regarding the usefulness of certain strategies over the others. Moreover, 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.

Third, 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. Regarding the vocabulary learning strategies questionnaire, the focus is only on cognitive aspect of vocabulary learning, not considering the affective part which may to some extent play a major role in learners' decisions for using strategies. Thus, conducting an interview to cover the affective aspect of vocabulary learning may reveal more interesting findings. On the other hand, apart from the use of a questionnaire to examine the type of strategies that students employ, including the use of vocabulary learning activities for data collection will provide more insight into how learners will use these strategies when encountered with unknown words. In addition, other tests of critical thinking should be employed to see if similar results are obtained, as the design of the instruments will impact the way participants respond to the items.

Finally, it will be useful to divide the students based on their level of proficiency. Therefore, incorporating the use of language placement tests is more suitable to measure individuals' proficiency in language rather than IELTS and TOEFL tests.

By referring to the pedagogical implications of the study, the relationship between critical thinking and other language learning strategies can be investigated in the same context to find out whether critical thinking plays a significant role in dealing with other language learning processes such as writing, reading and listening comprehension.

5.5 Conclusion

This study was an attempt to investigate the relationship between Iranian students' critical thinking ability and vocabulary learning strategies. However, the findings revealed no significant difference between the two variables under study. In spite of the obtained results, as it was argued in the present study, teaching the elements of critical thinking is considered important in modern education (Ku, 2009). Notwithstanding the fact that critical thinking 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 decisions should be made every day.

With regard to language education in the EFL context, learners need to be ready 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 an L2 which allows the individuals to express their opinions and experiences. In fact, this kind of language teaching and learning environment creates an opportunity for learners to develop their critical thinking ability.

Once critical thinking is integrated into the ongoing education, learners will be more successful in thinking critically in the second language. Taking this into account, it is significant to promote individuals' critical thinking skills. Thus, language learning curricula should be reorganized and learners must be challenged to employ critical thinking and problem solving skills in real situations outside a classroom context.

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APPENDIX A

California Critical Thinking Skills Test (CCTST) Persian Version

دانشجوی گرامی: با سلام و احترام

پرسشنامه ای که پیش رو دارید به منظور "بررسی تفکر انتقادی" می باشد. خواهشمند است پس از مطالعه ی هر یک از پرسش ها، گزینه ای را که فکر میکنید صحیح است را مشخص فرمایید. پیشاپیش از دقت نظری که معمول می دارید، صمیمانه سپاسگذارم.

(۱) عبارت "علی، نگران نباش، تو بالاخره یک روز در شغل ارتقاء می یابی. تو برای یک شرکت خوب کار میکنی و هر کسی که برای یک شرکت خوب کار کند، دیر یا زود در شغلش ارتقاء پیدا می کند." با فرض این که تمام عبارات ذکر شده صحیح باشد، نتیجه گیری:

- الف) صحیح است. (ج) احتمالاً غلط است اما می تواند صحیح باشد.
ب) احتمالاً صحیح است اما می تواند غلط باشد. (د) غلط است.

(۲) عبارت "به آن ماشین ها نگاه کنید، همگی با سرعت دقیقاً در یک خط پشت سر هم در حال حرکت هستند، آن ها آنقدر بهم نزدیک هستند که اگر یکی از آن ها ناگهان توقف کند، اتومبیل پشت سر به آن برخورد خواهد کرد. بنابراین، اگر ماشین اول ناگهان توقف کند همه ماشین ها با یکدیگر برخورد خواهند کرد." با فرض این که تمام مطالب فوق صحیح باشد، پیش بینی اصلی این مطلب:

- الف) صحیح است. (ج) احتمالاً غلط است اما می تواند صحیح باشد.
ب) احتمالاً صحیح است اما می تواند غلط باشد. (د) غلط است.

(۳) عبارت "پروژه خط لوله نفت مانند چاقویی که می تواند سیب را به دو بخش تقسیم کند، شهر ما را به دو قسمت شرق و غرب تقسیم کرده است، به همین دلیل ساکنین این دو بخش بعد از این پروژه، همدیگر را به عنوان اهالی یک شهر نمی شناسند، این جدایی جغرافیایی منجر به عدم اعتماد، ترس و خصومت آشکار شده است. به همین دلیل من به این نتیجه رسیده ام که پروژه خط لوله نفت اشتباه بزرگی برای شهر ما بود." با فرض این که تمام مطالب فوق صحیح باشد، نتیجه گیری گوینده:

- الف) صحیح است. (ج) احتمالاً غلط است اما میتواند صحیح باشد.
ب) احتمالاً صحیح است اما میتواند غلط باشد. (د) غلط است.

۴) این عبارت را در نظر بگیرید: حتی مسئولین کشور هم گاهی دچار دودلی و شک می شوند. دلیل آن این است که هر فردی که به دنبال تغییرات اساسی در ساختار جامعه باشد، مجبور است زندگی و سرنوشت بسیاری از افراد را در خطر اندازد، حتی گاندى هم که به عنوان مصلح دلسوز و حامی عدم خشونت شناخته شده است به دنبال تغییرات اساسی در ساختار اجتماعی بود و هر کسی که زندگی و سرنوشت افراد را به خطر می اندازد حداقل بعضی اوقات دچار شک و دودلی می شود. با در نظر گرفتن این که تمام دلایل ذکر شده صحیح باشد. عبارت اول:

- الف) صحیح است. (ب) احتمالاً صحیح است اما میتواند غلط باشد.
ج) احتمالاً غلط است اما میتواند صحیح باشد. (د) غلط است.

۵) کدام یک از گزینه های زیر با این عبارت هم معنی است؟ " تمام مدیران، برای کنفرانس حاضر نیستند."

- الف) تمام مدیران، برای کنفرانس حاضر نیستند. (ب) هیچیک از مدیران، برای کنفرانس حاضر نیستند.
ج) کسی که برای کنفرانس حاضر است، مدیر نیست. (د) تعدادی از مدیران، برای کنفرانس حاضر نیستند.

۶) فرض کنید این جمله صحیح باشد " فقط افرادی که به دنبال فعالیت و هیجان هستند باید به نیروی دریایی ملحق شوند". کدام یک از گزینه های زیر همین معنی را بیان میکند؟

- الف) شما نباید در جستجوی فعالیت و هیجان باشید، مگر این که به نیروی دریایی ملحق شوید.
ب) شما نباید وارد نیروی دریایی شوید، مگر این که در جستجوی فعالیت و هیجان باشید.
ج) اگر شما در جستجوی فعالیت و هیجان هستید، بهتر است وارد نیروی دریایی شوید
د) اگر شما وارد نیروی دریایی شوید، باید به دنبال فعالیت و هیجان باشید.

۷) فرض کنید که یک زیست شناس در مورد حیوانات خانگی در حال سخنرانی است. او می گوید " سگ خلق و خواهی متعددی را نشان می دهد". کدام یک از گزینه های زیر بهترین تفسیر برای این عبارت زیست شناس است؟

- الف) سگی وجود دارد که بیش از یک خلق و خو دارد. (ب) تمام سگ ها، خلق و خواهی متعددی دارند.
ج) تمام سگ ها، خلق و خواهی یکسانی ندارند. (د) تمام تفسیرهای بالا به یک اندازه قابل پذیرش هستند.
ه) یک موجود وجود دارد که بیش از یک خلق و خو دارد و آن سگ است.

۸) " مهاجرها دردسر درست می کنند". کدام یک از گزینه های زیر همین معنی را می دهد؟

- الف) مردم دردسر درست نمی کنند، مگر این که مهاجر باشند.
ب) اگر فردی مهاجر باشد، پس او دردسر درست می کند.
ج) اگر فردی دردسر درست می کند، پس آن فرد مهاجر است.
د) حداقل یک فرد مهاجر وجود دارد که او دردسر درست می کند.
ه) همه موارد فوق یک معنی را می دهد.

۹) کدام یک از عبارات های زیر تقریباً معادل این جمله است؟ " این صحیح نیست که اگر علی ماشین را تعمیر کرده، پس رضا قایق را تعمیر کرده است."

- الف) علی ماشین را تعمیر کرده، ولی رضا قایق را تعمیر نکرده است.
- ب) علی ماشین را تعمیر نکرده، مگر آن که رضا قایق را تعمیر کرده باشد.
- ج) یا علی ماشین را تعمیر کرده، یا رضا قایق را تعمیر کرده است.
- د) اگر رضا قایق را تعمیر نکرده، پس علی ماشین را تعمیر نکرده است.
- ه) هیچ کدام از گزینه های بالا تقریباً هم معنی با عبارت ذکر شده در بالا نیستند.

۱۰) این متن را در نظر بگیرید.

۱. در اکثر کشورهای صنعتی، نوجوانان تا بعد از سن بیست سالگی به نیروی کاری جامعه نمی پیوندند.
۲. در واقع بعضی از جامعه شناسان معتقدند که پیشرفت اقتصادی یک جامعه را می توان بر اساس میانگین سن پیوستن به نیروی کار جامعه سنجید.
۳. مطالعات روان شناسی بیان می کند که اضطراب های مختلف دوره نوجوانی در کشورهای صنعتی بیشتر آشکار هستند.
۴. بهرحال اگر فکر کنیم که نوجوانانی که کار می کنند احتمال دارد که لذت و خوشحالی در محیط کار را تجربه کنند، اشتباه است.

متن بالا در جهت نشان دادن کدام یک از گزینه های زیر بهتر توصیف شده است؟

- الف) اثبات درستی جمله (۱) ب) اثبات درستی جمله (۲) ج) اثبات درستی جمله (۳) د) اثبات درستی جمله (۴)
- ه) هیچکدام

* برای سوالهای ۱۱ و ۱۲ به متن زیر توجه نمایید.

۱. جهت درستی یا نادرستی یک عمل، ما باید اصول اخلاقی را بدون توجه به نتایج و پیامدهای احتمالی آن در نظر بگیریم.
۲. عمل های صحیح، آن هایی هستند که دارای نیت خیر، بیان حقیقت و احترام به حقوق دیگران باشند و اعمال های ناصحیح آن هایی هستند که این اصول را نقض می کنند.
۳. موقعیتی را در نظر بگیرید که بیان حقیقت ممکن است منجر به زیان بزرگی برای ملت شود. برای مثال:
۴. فرض کنید که شما می دانید که یک کاندیدای ریاست جمهوری سال ها پیش دارای سابقه فساد بوده است.
۵. فرض کنید که شما می دانید که اگر این کاندیدای انتخاب شود، مشکلات داخلی و خارجی کشور مطمئناً حل خواهد شد، غرور ملی احیا می گردد و نام او به عنوان یکی از بزرگترین رئیس جمهورها در تاریخ ثبت خواهد شد.
۶. اما شما می دانید که اگر عموم مردم از سابقه فساد اخلاقی گذشته او آگاهی یابند او مطمئناً تمام شانس ها را برای انتخاب شدن به عنوان رئیس جمهور از دست خواهد داد.

۷. با این حال وقتی که از طرف رسانه ها سوالات اختصاصی در مورد سابقه فساد اخلاقی این کاندیدا پرسیده می شود، شما نمی توانید از پاسخ اجتناب کنید.

۸. بیان حقیقت مستلزم آشکار کردن سابقه فساد اخلاقی گذشته او است.

۹. بنابراین حقیقت می تواند عمل درستی باشد، حتی اگر منجر به ضرر و زیان بزرگی برای ملت ما باشد.

۱۱) کدام یک از جملات متن بالا بیانگر نتیجه گیری اصلی است؟

الف) جمله (۱) ب) جمله (۲) ج) جمله (۳) د) جمله (۸) ه) جمله (۹)

۱۲) بهترین توصیف برای جمله (۲) کدام یک از گزینه های زیر است؟

الف) یک جمله ربطی که جملات ۱ و ۳ را به هم ربط می دهد. ب) یک نقطه نظر اخلاقی که از نظر منطقی بی ارتباط است.
ج) دلیلی برای تایید جمله اول د) نتیجه گیری یا نقطه نظر اصلی متن ه) توضیح یا رفع ابهامی جهت جمله اول

۱۳) اخیراً بسیاری از سازمان ها بر مبنای تعاونی ایجاد شده اند. این امر نشان دهنده این مطلب است که در رویکردهای پیشرفته تر جهت دستیابی به بازار، تعاونی مورد توجه و علاقه قرار گرفته است. این متن توسط کدام یک از گزینه های زیر بهتر توصیف می شود؟

الف) نتیجه گیری، "مدیریت خواستار راهکارهای جدید جهت دستیابی به بازار است."
ب) نتیجه گیری، "تعاونی ها اساساً وجود داشته اند و منحصراً جهت تامین منافع صاحبانشان نبوده اند."
ج) نتیجه گیری، "تعاونی ها به زودی بهترین عمل جهت رسیدن به بازار خواهند شد."
د) پیش فرض، "تعاونی ها قبل از توسعه سازمان ها، جهت رسیدن به بازار ناموفق بوده اند."
ه) پیش فرض، "سازمان های جدید یاد شده جهت رسیدن به بازار با توجه به رویکردهای جدید و پیشرفته در حال فعالیت می باشند."

۱۴) این عبارت را در نظر بگیرید "جولیوس سزار در قرن اول پیش از میلاد مسیح امپراتور روم بود. تمام امپراتوران روم شراب می نوشیدند و بدون استثناء از ظروف و جام هایی که دارای آلیاژ سرب بود، استفاده می کردند. هر کسی که از ظرف سربی استفاده کند، حتی برای یکبار، مسموم خواهد شد و مسمومیت با سرب همیشه خود را با جنون نشان می دهد".

اگر تمام موارد فوق صحیح باشد، کدام یک از گزینه های زیر باید صحیح باشد؟

الف) مسمومیت با سرب در بین شهروندان امپراطوری روم رایج بود.

ب) استفاده از ظروف سربی مزیتی منحصر به امپراطوران روم بوده است.

ج) صرف نظر از هر امری، جولیس سزار مطمئناً دیوانه بوده است.

د) کسانی که جنون دارند، حداقل یک بار از ظروف سربی استفاده کرده اند.

۱۵) فرض کنید که این عبارات صحیح باشند: " افرادی که شیک پوش و اهل مد روز هستند نه خودنما هستند و نه کودن، اگر چنین شخصی خودنما نیست پس چنین فردی خوش سلیقه است." در صورتی که مطالب ذکر شده صحیح باشد، کدام یک از گزینه های زیر باید صحیح باشد؟

- الف) اگر فردی لباس شیک بپوشد، آن فرد کودن اما خوش سلیقه است.
 ب) هیچ فرد خوش سلیقه ای کودن نیست.
 ج) افرادی که لباس شیک می پوشند، نه خوش سلیقه هستند و نه کودن.
 د) هر فردی که لباس شیک می پوشد، خوش سلیقه است اما کودن نیست.
 ه) هیچیک از موارد فوق

۱۶) فرض کنید که عبارات زیر صحیح باشند: " اگر علی به شخصی حسادت بورزد، آن فرد رضا است. افراد زیادی هستند که رضا به آن ها حسادت نمی کند که علی یکی از آن هاست. اما در دنیای امروزه هر فردی به دیگری حسد می ورزد." اگر تمام مطالب فوق صحیح باشد، کدام یک از گزینه های زیر باید صحیح باشد؟

- الف) هر فردی به یک نفر حسادت می ورزد. ب) علی به رضا حسادت می ورزد.
 ج) رضا به هیچ کس حسادت نمی ورزد. د) هیچ کدام از موارد فوق.

*** سوالات ۱۷ و ۱۸ بر اساس موقعیت تخیلی زیر است:**

شهر مشهد دارای ۷ منطقه شامل ۱، ۲، ۳، ۴، ۵، ۶ و ۷ است.

شهردار باید جهت عضویت در شورای شهر، نام پنج نفر را که هر کدام از یک منطقه هستند اعلام نماید. هر نوع ترکیبی از ۵ نفر امکان پذیر است جز اینکه، در صورت اعلام نام فردی از منطقه ۱، نمی توان فردی را از منطقه ۵ برگزید. اما اگر فردی از منطقه ۳ انتخاب شود، انتخاب عضوی از منطقه ۵ الزامی است و همچنین اگر فردی از منطقه ۲ انتخاب شود، شهردار باید عضوی از منطقه ۶ را اعلام نماید. در اینجا ۵ ترکیب احتمالی از افراد برای کمیته وجود دارد.

۱۷) از بین پنج ترکیب احتمالی که شهردار می تواند جهت انتخاب اعضای شورای شهر داشته باشد کدام یک تمامی موارد فوق را دارا هستند؟

- الف) ۱، ۲، ۳، ۴، ۵، ۶، ۷ ب) ۱، ۴، ۵، ۶، ۷ ج) ۲، ۳، ۴، ۶، ۷ د) ۲، ۳، ۴، ۵، ۶ ه) ۱، ۴، ۵، ۶، ۷

۱۸) فرض کنید که شهردار تصمیم دارد از منطقه ۷ کسی را انتخاب نکند، در این صورت کدام منطقه دیگر باید از عرصه انتخابات شورای شهر حذف شود؟

- الف) منطقه ۱ ب) منطقه ۲ ج) منطقه ۳ د) منطقه ۴ ه) منطقه ۵

۱۹) رابطه همزاد بودن را در نظر بگیرید. آن را می توان این چنین تعریف کرد: فقط انسان ها همزاد هستند اما هر فردی از گونه انسان ها همزاد ندارد. هیچ فردی نمی تواند همزاد خود باشد اما امروزه هر فردی همزاد فرد دیگری است. اگر فردی همزاد شما باشد، پس تمام همزادهای آن فرد، همزاد شما هم خواهند بود. اگر فردی همزاد شما باشد، پس شما نمی توانید همزاد همان فرد باشید. فرض کنید نام دو انسان اولیه که نیاکان ما به شمار می آیند، آدم و حوا باشد. با در نظر گرفتن مسئله همزادی با اطمینان می توان گفت که:

- (الف) تمام ما همزاد آدم و حوا هستیم.
(ب) آدم و حوا همزاد یکدیگر هستند.
(ج) آدم و حوا هر یک همزاد خودشان هستند.
(د) امکان دارد که فردی نه همزاد آدم و نه همزاد حوا باشد.
(ه) هیچ کدام از موارد فوق.

* برای پاسخگویی به سوالات ۲۰ و ۲۱ بر اساس موقعیت تخیلی زیر استفاده کنید.

در یک مطالعه علمی از زنان دانشگاهی که حداقل به مدت دو سال، روزانه یک یا چندین پاکت سیگار کشیده بودند، ۴۵ روز پس از ترک سیگار با انجام آزمایشی مشاهده شد که حجم ریوی ۸۵ درصد از آن ها، ۱۵٪ افزایش یافت. این احتمال که بهبودی مزبور تصادفی یا از روی شانس باشد، به صورت تجربی با درجه بالایی از اعتماد رد شد.

۲۰) اگر عبارات فوق صحیح باشد، یافته های فوق اثبات می کند که:

- (الف) سیگار کشیدن سبب کاهش ظرفیت ریوی می شود.
(ب) محدودیت استعمال دخانیت در مراکز دانشگاهی باید به اجرا در آید.
(ج) رژیم غذایی یک عامل در رابطه بین سیگار کشیدن و ظرفیت ریه نیست.
(د) پژوهشگر علاقه ای ذاتی به ترک مصرف دخانیات دارد.
(ه) مصرف سیگار از نظر آماری با کاهش ظرفیت ریوی در زنان دانشگاهی رابطه دارد.

۲۱) اگر اطلاعات ذکر شده در موقعیت بالا صحیح باشد، کدام یک از فرضیات زیر، به منظور اثبات این ادعا که "حدود ۸۵ نفر از ۱۰۰ نفر بزرگسالی که حداقل بمدت دو سال، روزانه یک یا چندین پاکت سیگار می کشیده اند در طی ۴۵ روز پس از ترک سیگار می توانند ۱۵٪ ظرفیت ریوی خود را بهبود ببخشند" نباید رد شود؟

- (الف) بهبودی در ظرفیت ریه، محدود به زنان است اما در مردانی که سیگار را ترک کرده اند این بهبود بارز نخواهد بود.
(ب) به علت این که افراد سیگاری، تعداد مصرف سیگار را خود گزارش نموده اند، رابطه واقعی بین ترک سیگار و بهبود ظرفیت ریوی بیش از میزان ذکر شده است.
(ج) از آن جا که زنان مورد مطالعه اکثراً آسیایی بودند، یافته های مزبور را نمی توان برای افراد بزرگسال جوامع دیگر به طور عمومی به کار برد.
(د) از آن جا که مسئولین دانشکده نتوانستند موضوع تحقیق را محرمانه نگهدارند، زنان دانشگاهی و دانشمندان دست اندر کار از هدف مطالعه اطلاع داشتند.

۲۲) فرض کنید هر موقع که قطار تاخیر می کند، علی و رضا گرسنه و بیقرار می شوند. با در نظر گرفتن این فرض، کدام یک از گزینه های زیر باید صحیح باشد؟

الف) قطار تاخیر دارد، علی گرسنه و رضا بیقرار است.

ب) اگر علی گرسنه باشد اما رضا بیقرار نباشد، قطار تاخیر ندارد.

ج) اگر علی بیقرار و یا رضا گرسنه باشد، قطار تاخیر دارد.

د) اگر قطار تاخیر نکند، علی و رضا نه بیقرار هستند و نه گرسنه.

ه) اگر علی و رضا گرسنه و یا بیقرار باشند، قطار تاخیر دارد.

۲۳) یک مدیر حسابداری هنگام کار کردن بر روی یک مشکل بازاریابی چنین استدلال می کند که "طرح الف" از "طرح ب" بهتر است اما "طرح د" از "طرح الف" بهتر است. با این حال "طرح م" از "طرح د" بهتر است. بنابراین "طرح د" از "طرح ن" بهتر است. با فرض درستی تمام موارد فوق کدام یک از گزینه های زیر باید به بحث حسابداری اضافه شود تا نتیجه گیری نهایی درست باشد:

الف) طرح (ن) بدتر از طرح (د) است. ب) طرح (ن) بدتر از طرح (الف) است.

ج) طرح (ب) بدتر از طرح (ن) است. د) طرح (الف) بدتر از طرح (ن) است. ه) هیچ کدام از موارد فوق

*** جهت پاسخگویی به سوالات ۲۴ و ۲۵ موقعیت تخیلی زیر را در نظر بگیرید.**

نتایج پژوهش در ۱۵ دانشگاه دولتی در ارتباط با "آزمون استاندارد سنجش آمادگی عمومی شغلی" نتایج زیر را نشان داد: میانگین نمرات دانشجویان ترم آخر رشته های علوم پایه، مهندسی و تجارت به ترتیب ۵۳، ۵۵، ۵۴ بود. مطالعه دیگری که بر روی دانشجویان ۱۰ دانشگاه خصوصی انجام شده بود، نشان داد که میانگین نمرات دانشجویان در همان آزمون در رشته های علوم پایه، مهندسی و تجارت، ۵۶ اما در رشته علوم انسانی ۵۴ بود. مطالعه سوم بر روی یک گروه انتخاب شده از جوانانی که در دوره ی دبیرستان دانش آموزان خوبی بودند و فقط به دلیل مشکلات مالی به دانشگاه راه نیافته بودند و پس از اتمام دوره دبیرستان مستقیماً به کار تمام وقت مشغول بودند، انجام شد. این گروه از نظر سن و معلومات دوره دبیرستان با دو گروه دیگر همگون شده بودند. میانگین نمره این افراد در همان آزمون ۳۲ بود که اختلاف عدد ۳۲ با نمرات فوق از نظر آماری با ۰/۰۵ اعتماد معنی دار بودند.

۲۴) مناسب ترین فرضیه علمی بر اساس عبارات فوق عبارت است از:

الف) تحصیلات دانشگاهی با آمادگی عمومی شغلی رابطه دارد.

ب) باید برای دانش آموزان مستعد و کم بضاعت جهت ورود به دانشگاه کمک های مالی فراهم گردد.

ج) ورود به دانشگاه با آمادگی عمومی جهت ورود به یک شغل رابطه ندارد.

- (د) قبل از تدوین یک فرضیه مناسب، مطالعات بیشتری مورد نیاز است.
- (ه) فردی که نمره ۶۰ یا بالاتر می گیرد، عموماً آمادگی لازم جهت وارد شدن به یک شغل را دارد.

(۲۵) جهت رد علمی گزینه ۳ در سوال ۲۴، فرد باید:

- (الف) دانشجوی فارغ التحصیلی را بیابد که آمادگی ورود به شغل را ندارد.
- (ب) به این نتیجه برسد که ۹۵ درصد جوانان به طور عمومی آمادگی ورود به شغل را دارند.
- (ج) به این نتیجه برسد که احتمال ایجاد رابطه تصادفی کمتر از ۵ درصد است.
- (د) دست به هیچ اقدامی نزند، هیچ راهی برای رد علمی نظریه مزبور وجود ندارد.

(۲۶) به نظر می رسد دو دلیل اصلی برای طرفداری از مجازات اعدام وجود دارد. دلیل اول این که ترس شدید ناشی از مرگ دیگران را از ارتکاب جنایات وحشتناک مشابه، باز می دارد و دلیل دوم این که اعدام اقتصادی تر از روش دیگر یعنی زندگي کردن در زندان است. اما مطالعات علمی نشان داده است که واقعیات اقتصادی شدیداً طرفدار زندگي کردن افراد هستند. مردم عموماً فکر می کنند که صرفه جویی اقتصادی در مجازات اعدام واقعیت های اقتصادی را تغییر نمی دهد. بنابراین مجازات اعدام باید ممنوع شود، دلایل ذکر شده گوینده فوق را چگونه ارزیابی می کنید؟

- (الف) ضعیف، نشان دهنده نظرات عموم مردم نیست.
- (ب) ضعیف، این استدلال دلیلی در ارتباط با منع دیگران از ارتکاب جنایات ارائه نمی دهد.
- (ج) قوی، این استدلال نشان می دهد که مجازات اعدام احتمالاً باید ممنوع شود.
- (د) قوی، اما در ارتباط با ممنوعیت مجازات اعدام به طور واقعی اشتباه کرده است.

(۲۷) متوسط قیمت فروش خانه در کشور در طی یک دوره به شدت کاهش یافت و این روند در طول این دوره که ۳ سال به طول انجامید، ادامه داشت. در طول همین دوران نرخ بهره و قیمت املاک به شدت افت نمود. این واقعیات نشان دهنده این امر است که خانه جزو املاک بشمار می آید. بهترین ارزشیابی از دلایل گوینده عبارت است از:

- (الف) قوی، اما تمام واقعیت ها به طور صحیح بیان نشده است.
- (ب) قوی، زیرا خانه جزو املاک به شمار می آید.
- (ج) ضعیف، زیرا با در نظر گرفتن واقعیات مربوط به املاک و نرخ بهره نمی توان در مورد قیمت خانه نتیجه گیری کرد.
- (د) ضعیف، زیرا قیمت فروش اتومبیل های جدید در طی همان دوران کاهش یافته بود اما این مسئله نشان دهنده این مطلب نیست که خانه، همان اتومبیل جدید است.

۲۸) همزمان با غروب آفتاب، علی کوچولو در پیاده روی جلوی منزل دوچرخه سواری می کرد. شب در حال فرا رسیدن بود و مهمانی شبانه او قرار بود شروع شود. علی تمام دوستانش را دعوت کرده بود، آنها قرار بود پیتزا بخورند، فیلم های جالب ببینند و تا دیر وقت داستان های ترسناک برای یکدیگر تعریف کنند. علی بی صبرانه منتظر بود. او آرزو کرد که خورشید سریع تر برود و پشت تپه ها قایم شود و اجازه بدهد که شب بیاید. او تصمیم گرفت که با حداکثر سرعت روی دوچرخه اش پا بزند تا بتواند خورشید را دور کند. او پا زد و زد، هرچقدر که بیشتر پا میزد هوا تاریکتر می شد. شب در حال آمدن بود و مهمانی شبانه در حال فرا رسیدن. علی بیشتر و بیشتر پا زد و وقتی که سرانجام هوا تاریک شد او خیلی خسته شده بود اما خیلی خوشحال بود. علی به آنچه که اتفاق افتاده بود، اندیشید و به این نتیجه رسید که او می تواند هر بعد از ظهر طولانی و خسته کننده را به یک شب شاد تبدیل کند. بهترین ارزشیابی از دلایل علی عبارت است از:

الف) قوی، چه شاهدی وجود دارد که اگر او آنقدر سخت کار نکرده بود، آن اتفاق نمی افتاد.

ب) قوی، علی فقط یک بچه است.

ج) ضعیف، خورشید بدون ارتباط با پدال زدن یا نزدن او در حال حرکت به دور زمین است.

د) ضعیف، این که بعد از پدال زدن فراوان علی آن اتفاق افتاد به این معنی نیست که به دلیل پدال زدن سخت او این اتفاق افتاد.

۲۹) گوینده رادیو بیان کرد: "روزنامه نگاران باید به حقوق مردم جهت آگاهی از مطالب آشنایی داشته باشند تا بر مبنای این حق، تمام وقایع مهم را به صورت کامل و دقیق به اطلاع عموم مردم برسانند. در عین حال روزنامه نگاران نباید نقش خود را در حراست از امنیت ملی فراموش کنند که لازمه آن حفظ اسرار حکومتی است. هیچ کس با قطعیت نمی تواند بگوید که حق مردم جهت اطلاع از امور مختلف مهم تر است یا امنیت ملی. این مسئله مباحث پیچیده ای را به دنبال دارد. برای مثال: یک روزنامه نگار ممکن است از زمان و محل دقیق یک حمله نظامی فوق سری تحت حمایت دولت مطلع گردد. همچنین مردم حق دارند که از اقدامات دولت خصوصاً در مسائل بسیار حساس مثل حمله نظامی اطلاع داشته باشند. اما انتشار این اخبار قبل از شروع حمله می تواند به نفع دشمن تمام شود و شکست سختی را برای کشور به دنبال آورد". بهترین ارزشیابی در مورد استدلال گوینده عبارت است از:

الف) ضعیف، زیرا قانون تصریح کرده که امنیت ملی مهم تر است.

ب) ضعیف، زیرا در عمل، روزنامه نگاران، انتخابی را که دارای ارزش بیشتری است انجام می دهند.

ج) قوی، زیرا حقوق مردم جهت اطلاع از واقعیات را نباید زیر پا گذاشت.

د) قوی، زیرا متن ذکر شده ارزش های مهم مزبور در تعارض هستند.

۳۰) مجموعه کامل ظروف غذاخوری حداقل شامل ۶ بشقاب برنج خوری، ۶ بشقاب خورشت خوری، ۶ ظرف سوپ خوری، ۶ لیوان آب و ۶ ظرف ماست خوری است. می توان این ۳۰ قطعه را اساسی ترین ظروف در یک سرویس غذا خوری فرض کرد. در یک سرویس کامل غذاخوری قطعات دیگری نیز وجود دارد. از جمله کاسه های کوچک ترشی خوری، دیس های بزرگ غذاخوری، نمکدان، شکرپاش و حتی جا کره ای که این قطعات را سرویس لولزم فرعی می گویند. حال فرض کنید که شما

یک سرویس کامل غذاخوری هدیه گرفته اید. بنابراین بر اساس آنچه گفته شد، می توان نتیجه گیری کرد که در بین قطعات این سرویس کامل، حتماً ۶ عدد ظرف برنج خوری، خورشت خوری، سوپ خوری، ماست خوری و لیوان وجود دارد. بهترین ارزشیابی در مورد شیوه نتیجه گیری نویسنده عبارت است از این که:

- الف) ضعیف، هیچ چیزی را اثبات نمی کند، زیرا مثل آن است که بگوییم "اقیانوس آب است زیرا آب دارد".
ب) ضعیف، زیرا قطعات مربوط به سرویس لوازم فرعی را در نظر نگرفته است.
ج) قوی، نویسنده انواع ظروف را در مجموعه سرویس غذاخوری برشمرده است.
د) قوی، نتیجه گیری در واقع تکرار صریح اطلاعات فوق است.

* برای پاسخگویی به سوالات ۳۱، ۳۲، ۳۳ و ۳۴ به استنتاج غلطی که در مورد موقعیت تخیلی زیر وجود دارد، توجه نمایید.

" نویسنده ای که با جهت گیری فکری کار می کرد مدعی شد که فارس ها از نقطه نظر هوش ذاتی بر ترک ها، کردها، لرها، بلوچ ها و سایر اقوام ایرانی برتری دارند. نویسنده جهت تایید ادعایش به مطالعه ای که روی دو گروه از دانش آموزان سال دوم دبیرستان انجام شده بود، اشاره نمود. از هر گروه امتحان مشابهی در خصوص جغرافیای جهان مشتمل بر کشورها، پایتخت ها، رودخانه ها، رشته کوهها، کشاورزی، صنعت، مذهب، موسیقی و زبان به عمل آمده بود. گروه اول شامل ۳۵ نفر بودند که ۳۴ نفرشان فارس و دارای خانواده مرفه بودند که در دبیرستان غیر دولتی در شمال کشور شهر تهران مشغول به تحصیل بودند و طی سال اول تحصیلی علاوه بر جغرافیای ایران، جغرافیای کشورهای جهان را نیز می خواندند. گروه دوم شامل ۴۰ نفر که همگی بجز ۴ نفر ترک، کرد، لر یا بلوچ بودند و در شهرستان های ایران خانواده های کم درآمد و در دبیرستان دولتی در محله های مخروبه و پر از مفاسد اجتماعی مشغول به تحصیل بودند و در سال اول مجموعه جغرافیای ایران را مطالعه می کردند. نویسنده اعلام نمود که گروه اول مزیت محسوسی در امتحان درس جغرافیا در قیاس با گروه دوم داشتند."

۳۱) فرض کنید که یک دانشمند علوم سیاسی اعتراض کند و بگوید: نتیجه گیری از اطلاعات فوق با توجه به ادعای مطرح شده غلط است زیرا پژوهشگر به حقوق تصریح شده در قانون اساسی مبنی بر برخورداری از فرصت های آموزشی یکسان توجه ننموده است. در صورت درست بودن این مطالب، آیا دلیل این دانشمند موجه است یا خیر؟ چرا؟

الف) موجه، زیرا زیر پا گذاشتن اصول قانون اساسی، مطالعه را غیر قابل قبول می سازد.

ب) موجه، وجود فرصت های آموزشی یکسان در اینجا گنگ و نامفهوم است.

ج) غیرموجه، این حقوق در تحقیق اصلی مورد توجه قرار گرفته اند.

د) غیرموجه، این حقوق هیچ ارتباطی با تحقیق ندارد.

۳۲) فرض کنید یک دانشمند رشد و تکامل بیان می کند: " نتیجه گیری از اطلاعات با توجه به ادعای مطرح شده غلط است. زیرا در این مطالعه تاثیر محیط بر روی هوش مورد توجه قرار نگرفته است". در صورت درست بودن آیا دلایل این دانشمند موجه است یا خیر؟ چرا؟

- الف) غیرموجه، هیچ کس اثبات نکرده است که محیط می تواند بر روی یادگیری جغرافی تاثیر بگذارد.
- ب) غیرموجه، اندازه گیری تاثیر محیط بر روی هوش خیلی دشوار است.
- ج) موجه، عامل محیط در این تحقیق باید مورد توجه قرار گیرد.
- د) موجه، عامل اصلی تعیین کننده هوش ژنتیک نیست بلکه محیط است.

۳۳) فرض کنید که یک خانم مددکار اجتماعی اعتراض کند که " شما نباید انتظار داشته باشید که افراد (گروه ب) به همان اندازه هوش باشند. زیرا آن ها دارای پیش زمینه فقر، جنایت و خانواده های از هم پاشیده هستند". در صورت درستی این مطلب، آیا دلیل این مددکار اجتماعی موجه است یا خیر؟ چرا؟

- الف) موجه، زیرا محله فقیر به معنی مدارس فقیر، مدارس فقیر به معنی معلمان فقیر، معلمان فقیر به معنی دانش آموزان فقیر و دانش آموزان فقیر به معنی نمرات ضعیف در آزمون است.
- ب) غیرموجه، صرف نظر از شرایط اجتماعی اقتصادی هوش به کیفیت مدرسه ای که شما در آن تحصیل می کنید، بستگی دارد.
- ج) غیرموجه، ثروت و شرایط خانوادگی بر میزان بالا و پایین بودن هوش فرد موثر نیست.
- د) موجه، بدون توجه به اقوام مختلف، دانش آموزان با این نوع پیش زمینه ها دارای هوش کمتری نسبت به دانش آموزان ثروتمند هستند.

۳۴) فرض کنید که یک دانشجوی تربیت معلم کُرد با عصبانیت اعتراض می کند که " شما چه انتظاری دارید؟ دانش آموزان ثروتمند درس جغرافیای جهان را گذرانده اند در حالی که دانش آموزان فقیر درس جغرافیای استان تهران را گذرانده بودند. مسلماً دانش آموزان ثروتمند در مورد کشورهای مختلف جهان مطالب بیشتری می دانند"، در صورت درستی این مطالب آیا دلیل او موجه است یا خیر؟ چرا؟

- الف) غیرموجه، او تنها یک دانشجوی تربیت معلم است و احتمالاً تجربه تحقیق و آموزش جهت تأیید ادعایش را ندارد.
- ب) موجه، اطلاعات در مورد واقعیت ها ابزار سنجش هوش نیست.
- ج) موجه، اختلاف میان دروس تدریس شده در سال اول باعث شده که (گروه الف) در زمینه امتحان جغرافیا از آمادگی بیشتری نسبت به گروه دوم برخوردار باشند.
- د) غیرموجه، او به شکل آشکاری موضع گرفته است، زیرا کُرد است و به دلیل نتایجی که نویسنده ارائه داده احساس توهین می کند.

APPENDIX B

VOCABULARY LEARNING STRATEGIES QUESTIONNAIRE

Before answering the questionnaire, please read instructions carefully.

- Answer the demographic questions.
- There is no true or false answer.
- Choose what you really do in learning a new vocabulary not what you think as useful to be used in learning English.

Gender: Male Female

Age.....

Faculty.....

IELTS band Score.....

Master PhD

Years of exposure to English.....

When I find a new English word that I don't know, I...		Never	Seldom	Sometimes	Often	Always
A1	Check the form of the new word (e.g. find its verb, noun, adj., adv., etc)					
A2	Look for any word parts that I know (impossible, possible, possibility, possibly, etc)					
A3	Check if the word is also a Persian word (e.g. Caravan)					
A4	Use any pictures or gestures (body language) to help me guess the meaning					
A5	Guess its meaning from context					
A6	Use a Persian-English dictionary					
A7	Use an English-English dictionary					

B1	Ask the teacher to give me the definition or translation of a word					
B2	Ask my classmates for the meaning					
When I want to remember new words and build my vocabulary, I...		Never	Seldom	Sometimes	Often	Always
B3	Study the word with my classmates					
B4	Ask the teacher to check my definition					
B5	Talk (interact) with native speakers					
C1	Draw a picture of the word to help remember it					
C2	Make a mental image (imaginary image) of the word's meaning					
C3	Connect the word to a personal experience					
C4	Remember the words that follow or precede the new word					
C5	Connect the word to other words with similar or opposite meanings					
C6	Remember the words in scales (always, often, sometimes, never)					
C7	Group words together to study them					
C8	Use new words in sentences					
C9	Write paragraphs using several new words					
C10	Study the spelling of a word					
C11	Study the sound of a word					
C12	Say the new words aloud when I first encounter them					
C13	Make a mental image of the word's form.(e.g. if the word is noun I make a mental image different from its verb form					

When I want to remember new words and build my vocabulary, I...		Never	Seldom	Sometimes	Often	Always
C14	Remember the word using its part (im-, un-, able, -ful, -ment, ex-)					
C15	Remember the word using its word form (verb, noun, adjective)					
C16	Make my own definition for the word					
C17	Use physical action when learning a word					
D1	Repeat the words aloud many times					
D2	Write the words many times					
D3	Make lists of new words					
D4	Use flashcards to record new words					
D5	Take notes or highlight new words in class					
D6	Put English labels on physical objects					
D7	Keep a vocabulary notebook					
E1	Use English-language media (songs, movies, the internet)					
E2	Test myself with word tests					
E3	Study new words many times					
E4	Skip or pass new words					
E5	Pay attention to English words when someone is speaking English.					

APPENDIX C

SAMPLE OF INTERVIEW TRANSCRIPT

Researcher: *Before we start with the interview, I would like you to go through the different categories of strategies as provided in this paper, to have a clear idea of what you are going to be asked.*

R: Why do you indicate using determination strategies such as ‘guessing the meaning of words from the context’ and ‘using English-English dictionary’ most frequently than other strategies?

S: Well...I find these ways very effective in learning new words.

R: What do you mean exactly by being effective?

S: Um... I can find the meaning of words easier and faster using these techniques...Actually, these techniques are something I am used to do...as I remember...from high school, and the teacher always encouraged us to use a dictionary... especially monolingual...and sometimes she made us to guess the meaning of a word first and then refer to a dictionary.

R: So what you are saying is that you have been using these strategies since high school?

S: Yes.

R: Metacognitive strategies were found to be the second most frequently used strategies. Why do you consider strategies such as ‘paying attention to words when someone is speaking English’ and ‘using the English language media’ to be useful in learning new vocabulary?

S: When I listen to music and watch a movie, I can hear the words repeatedly...so...media in general provides more exposure to language...or by listening to someone speaking English, I can see the authentic use of language...what I mean is how the words are used in sentences... and later try to use them myself...this also increases exposure to learn English words. Well...in general, in Iran where we cannot use the language outside the class, using the media through satellites, listening to people speak, and even testing yourself will provide more exposure to language.

R: Why strategies such as ‘paying attention to English words when someone is speaking’, ‘using English language media’ and guessing from the context’ were the most frequently used strategies? How do you find them useful in learning new vocabulary?

S: As I explained in the previous question, paying attention to someone speaking provides more exposure to the correct use of the words.

R: Ok, what about the usefulness of English language Media in learning new vocabulary?

S: Apart from providing exposure to language...media makes learning easier. For example, when I watch a movie, since I can see the context in which the words are used, then I learn them better...you see the image and hear the word...for me it is very effective.

R: How do you find guessing the meaning from the context, useful?

S: I think...when I guess the meaning from the context, I do not get help from anyone and try to come up with the meaning. This, will improve learning words without getting help from others, which I think is very important because at some stage you need to try and learn the language yourself, not always asking the teacher or your friends.

R: Why do you sometimes find memory strategies which include memorization, making mental images or writing sentences useful in learning new vocabulary?

S: I believe that techniques that are related to memorization are only useful when you have just begun to learn a language, because words learnt through these techniques will be soon forgotten.

R: Can you explain more?

S: For example, drawing a picture for a word or writing sentences using that word is only effective when you in the beginners level and you are learning simple and basic words...as you improve, these techniques won't be useful at all...you can't draw a picture for abstract words or keep writing sentences or paragraphs, you should look for different ways of learning new words that are more effective as your English improves.

R: Cognitive strategies are sometimes used. Why strategies such as using flashcards, taking notes or repeatedly writing or saying a word do not help you in learning new vocabulary?

S: For me these strategies are not useful anymore...let's say, taking notes and using flashcards...I used these techniques when I was in high school, they are old ways of learning vocabulary... I never learnt any words using these techniques. I don't find them useful at all.

R: What do you exactly mean by being old ways of learning words?

S: Previously I used to list new words or make flashcards, but it's impossible to list every word or make a flashcard. Rather, it is better to use the words in the context or learn them through the use of media... since before, we did not have access to English language media, but now media is accessible at all times...well... I think cognitive strategies are old ways of learning vocabulary and not very effective.

R: Why don't you favor or use social strategies much? Why don't you find strategies which involve group work and interacting with others useful in learning vocabulary?

S: Once you try to find the meaning of new words yourself, you will better memorize them...what I mean is that...if you ask someone for the meaning of words, they will provide you with an answer right away but it will be forgotten... since there was no attempt to explore the meaning of words...but if you try to find it yourself, you will be more motivated to learn...like using the dictionary or guessing from the context.

APPENDIX D

CONSENT FORM

Project Title

The Relationship between Critical Thinking Ability and Vocabulary Learning Strategy among EFL

Researcher

N. Boroushaki, Master Student of Teaching English as a Second Language, Faculty of Languages and Linguistics, University Malaya

Contact

boroushaki.n12@gmail.com

Dear Student,

As part of the requirements for my Master’s degree at University Malaya, I have to carry out a research study. The study is concerned with “The relationship between critical thinking ability of Iranian students studying in University of Malaya and their vocabulary learning strategies”. You have been asked to participate in the study because as an Iranian student you are suitable to provide data for my study.

Your participation in this research study will involve completing a test of critical thinking, which you should respond to 34 items. As well as a questionnaire of vocabulary learning strategies which consists of 41 likert-scale items with the answers ranging from ‘never to always’.

After a few weeks, selected participants will be asked to attend one interview session.

The data collected will be kept confidential and you will not be identified by name. There is no personal risk or discomfort directly involved with this research. Your participation is voluntary and you are free to withdraw your consent and discontinue participation in this study at any time.

If you have any questions or problems in connection with participation in this study, please contact me through email.

I have read the above information, and have received answers to any questions I asked. I consent to take part in the study.

Name

Date

Signature