

A Comparative Investigation of Tick-8 and G-5 Techniques in Learning Vocabulary among Iranian EFL Learners

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ABSTRACT

Vocabulary is central to language and is one of the challenging parts of every languages learning. One of the problems that English foreign language learners however, complain about it is having difficulty to remember the words they have learned. In this regard vocabulary learning strategy is an approach which helps learners. So, this study is an attempt to study the effects of Tick-8 and G-5 mnemonic techniques on Iranian English language learners' retention of vocabulary items. To do so, 60 Iranian English language learners' at intermediate level were randomly selected for the study. They were randomly divided into three groups, two experimental and one control group. In order to get assurance as to the homogeneity of the learners they were pre-tested and a same test was repeated as post-test after 9 weeks. Three groups were taught about 360 vocabulary items. These vocabulary items were taught with two different mnemonic techniques (Tick-8 & G-5) to the experimental groups while control group did not receive any technique. A one way ANOVA test indicated that 1) there was a significant difference between experimental and control groups in retention of vocabulary items. 2) There was a difference among the effects of Tick-8 and G-5 techniques on learners' retention of vocabulary items.

1. 1. INTRODUCTION

Hedge (2000) suggested an agenda of issues about different aspects of vocabulary learning that might well contain the following:

- A- What strategies do learners use to acquire new words or to retain them?
- B- How is a second language learner's mental lexicon organized and how does it develop over time?
- C- How do learners build an understanding of the relationship among words?
- D- Which words are the most useful to learn?

The answers to some of these questions clearly depend on insights obtainable from research studies: both linguistic studies which focus on what relationships exist among words in lexical system of the English language and acquisition studies which focus on how vocabulary is learned [11]. This study works in first phase of Hedges' suggestion about different kind of strategies learners' use in order to learning vocabulary while the main focus of this study is on comparing two different mnemonic strategies(Tick-8 and G-5 techniques) on Iranian EFL learners' vocabulary knowledge.

As crystal [6] puts it "vocabulary is the Everest of language and getting mastery of language claims enumerable effort as well as a lot of time". There is no doubt that vocabulary plays an important role in learning a foreign language. As we know every one's comprehension of a passage depends on his knowledge of FL vocabularies. But problem is that there are too many vocabulary items in English and it is almost impossible to memorize and learn all of them [1]. One thing that students, teachers, material writers, and researchers can all agree upon is that learning vocabulary is an essential part of mastering a language. In Iranian settings like other foreign language teaching settings one of the main issues in vocabulary teaching and learning is how to teach new words. Deciding on how to teach the new vocabulary items to students is very important problem during the teaching process. The new vocabulary items should be presented in such a way that the students can learn and remember them easily when they are needed. Retention of new vocabulary items is one of the problems of Iranian learners' however they always complain that they easily forget the newly learned words.

This study attempts to introduce more effective vocabulary learning strategy to EFL learners (especially Iranian EFL learners) through a comparative investigation of Tick-8 and G-5 mnemonic techniques on Iranian EFL learners' vocabulary learning in two fold: (1) to explore whether Tick-8 and G-5 techniques will effect students' vocabulary knowledge (2) whether Tick-8 and G-5 techniques will improve students' vocabulary knowledge differently over time.

1.2. Research Questions

The best means of achieving good vocabulary learning is still unclear, partly because it depends on a wide variety of factors and so, it is perhaps not surprising that teachers and learners have often been unsure of the best way to pursue it, especially as textbooks and syllabuses have typically been negligent in providing clear description and guidelines [12]. Despite the abundance of research on vocabulary acquisition that has been

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conducted by linguists, psychologists and theorists of L2 acquisition, there is still no generally accepted theory of vocabulary acquisition [20]. Thus, respect to the research problem this study intends to answer these questions according to the findings of the study. Then research questions ask:

- 1- Does Tick-8 technique have any effect on Iranian EFL learners' vocabulary knowledge?
- 2- Does G-5 technique effect on Iranian EFL learners' vocabulary knowledge?
- 3- Do Tick-8 and G-5 techniques affect Iranian EFL learners' vocabulary knowledge differently?

1.3. Research Hypothesis

1.3.1. Null Hypothesis

- 1- Tick-8 technique does not have any effect on Iranian EFL learners' vocabulary knowledge. (H0)
- 2- G-5 technique does not have any effect on Iranian EFL learners' vocabulary knowledge. (H0)
- 3-Tick-8 and G-5 techniques do not affect Iranian EFL learners' vocabulary knowledge. (H0)

1.3.2. Alternative Hypothesis

- 1- Tick-8 technique has effect on Iranian EFL learners' vocabulary knowledge. (H1)
- 2- G-5 technique has effect on Iranian EFL learners' vocabulary knowledge. (H1)
- 3-Tick-8 and G-5 techniques affect Iranian EFL learners' vocabulary knowledge differently. (H1)

1.4. Key Terms

Vocabulary Knowledge, Vocabulary Learning Strategies, Mnemonic Techniques, Tick-8& G5Techniques

1.5. Vocabulary Instruction

Vocabulary instruction has a strong theoretical and empirical base in the field of general education (cf Bumann, Kame ennui, & Graves, 2006; Stahl & Fairbanks, 1986), and a growing base in special education (Bryant et al, 2003; Denton & Ebbers , 2008; Deshler, Harris & Shumaker, 2011; Jitendra et al., 2010). Specifically, researchers have reported that a key strategy for fostering student capacity to develop decontextualized understanding of complex word meaning is multiple exposures to individual words in and out of context (Beck & McKeown , 2006; Stahl & Fairbanks, 1986). Dale (1965), outlined a framework for incremental stages of word learning that are applicable to vocabulary learning: Stage 1- Never having seen the term before; Stage 2- Knowing there is such a word, but not knowing what it means; Stage 3- Having context-bound and vague knowledge of word s meaning; and Stage 4- Knowing the word well and remembering it, including the ability to name synonyms, antonyms, and other related concepts [20]. More recently, Beck, Bravo, and Cervetti, McKeown, Omansen's (1987) continuum for knowledge of terms ranged from (a) a student having no control of a term (never seen or used the term), to (b) a student possessing passive control, and, finally, to (c) a student demonstrating active control. Therefore, providing instructions that helps student advance beyond Bravo and Cervetti's stage of passive control is a challenging endeavor that requires both effective instructional practice and an understanding of cognitive functioning. Two instructional frameworks, Graves (2006) and Harmon and colleagues (2009), provide conceptually sound frameworks for designing and implementing vocabulary instruction. Graves (2006) framework for vocabulary instruction is a compelling organizational tool for planning and implementing vocabulary instruction. The four strands are as follows: (a) provide rich and varied language experiences; (b) teach individual words; (c) teach word-learning strategies; and (d) foster word consciousness. Graves' (2006) framework encompasses key practices known to promote vocabulary knowledge; therefore, teachers and others may use it as a logical starting place for planning and delivering high-quality vocabulary instruction. Key themes in the field of vocabulary instruction include the need to help students become aware of semantic parts of words (Anders & Bos 1990; Nagy,2007; Scammacca et al., 2008) and to dedicate instructional time to teaching word parts and meanings (Abbott & Berninger, Nagy; Nagy 2006.), as well as strategies for forming connections between semantically related terms (Baumann & Kame ennui, 2004; Graves, 2006; Nagy, 2006; et al.). Two categories of vocabulary instruction help translate these themes into practice. The first is explicit instruction, and the second is teaching students the skills and strategies needed to learning words (Graves; Stahl & and Kapinus, 2001). The second category of vocabulary learning instruction is the main issue of this study so the main attention will be paid to vocabulary strategy training [18].

1.6. Vocabulary Learning Strategies

The classification of vocabulary learning strategies, consideration has to be given not only to the process of learning vocabulary but also to the first and the second language, to the characteristics of the learners, and to the focus of the research concerned. In fact, no classification is perfect, and any individual strategy may fall into one category or another, depending on the aspect in focus. What is beyond dispute is that strategies may broadly be divided between those that are more directly related to individual learning tasks and entail direct manipulation or transformation of the learning materials, that is, the cognitive strategies, and those that are connected with the learning process, planning, monitoring of comprehension or production while it is taking place, and self-evaluation after the learning activities have been completed, that is, the metacognitive strategies (Brown & Palmiscar, 1982, as cited in OMalley & chamot, 1990).

Schmitt [19], however, suggested two categories of L2 vocabulary learning strategies: discovery and consolidation strategies. The former referred to determination and social strategies whereas the latter include

social, memory, cognitive, and metacognitive strategies. In fact, no classification is perfect, and any individual strategy may fall in to one category or another, depending on the aspect in focus. What is beyond dispute is that strategies may broadly be divided between those that are “more directly related to individual learning tasks and entail direct manipulation or transformation of the learning materials,” that is, the cognitive strategies, and those that are connected with “the learning process, planning for learning, monitoring of comprehension or production while it is taking place, and self-evaluation after the learning activities have been completed,” that is metacognitive strategies [16]. Another vocabulary learning taxonomy, illustrated by Nation [14], which its fundamental feature is that the types of strategies refer to various aspects of vocabulary learning. In other words, this taxonomy separates the elements of vocabulary knowledge from vocabulary sources and learning processes. The strategies of planning encompass decisions about which lexical items to attend to, as well as how to focus attention and how often to give attention to the item. Learners need to know which vocabulary they need, where they can find information, which aspect of knowledge is required in a particular.

A-Planning: choosing what to focus on and when to focus on it. Choosing words, choosing the aspects of word knowledge, choosing strategies, planning repetition

B-Sources: finding information about words. Analyzing the word, using context, consulting a reference source in L1 or L2, using parallels in L1 and L2

C-Processes: establishing knowledge.

Noticing, retrieving, generating Taxonomy kinds of vocabulary learning strategies by Hatch and Brown [10]:

A- Encountering new words (with sources of new words being reading, watching TV, listening to radio, conversation with native speakers, textbooks, word lists, dictionaries, etc.

B- Creating a mental picture (visual, auditory or both) of word form (e.g. relating a new word with L1 words or other FLs with similar sounds, using phonetic script, relating to already acquired English words that sounds similarly).

C- Learning the words meaning (e.g. asking the native speaker for the meaning, creating a mental image of the meaning, guessing from context).

D- Creating a strong linkage between word form and meaning in the memory (regardless of the memory strategy used- as long as it is used).

E- Using words (in example sentences, collocations, various contexts, conversations, etc.).

All five steps are indispensable in the vocabulary learning process, even if at a minimal level. The extent to which a learner engages in each step is directly dependent on the learning goal. For example, if the goal of learning is passive, i.e. receptive knowledge of certain vocabulary, the fifth step is irrelevant. On the other hand, using words is no guarantee of long –term retention. Hatch and Brown [10] see the steps as connected ‘sieve’. The greatest number of lexical items enter the first sieve (the first step), but only a limited number of them pass through it into the next sieve, or the next step. The process is repeated through all sieves, so that the retained number of lexical item is notably smaller than at the initial input. The greater the number of lexical items that the learners manages to transfer from one sieve to the other, to richer her or his vocabulary is.

1.7. Mnemonic Strategies

Given that learning may take place intentionally or incidentally, a distinction has often been made between strategies that involves the learners more deeply (deep processing) and those that do not involve the learners deeply or do so to a much lesser extent (surface processing). Although evidence from cognitive psychology indicates that activities that require a deeper, more involved manipulation of information are more conducive to learning than those that do not (9). The word *mnemonic* is derived from the Greek word *Mnemosyne*, referring to the ancient Greek goddess of memory. The use of mnemonic dates back to 500 B.C). The first used mnemonic device was an earlier form of the modern day method of loci and since then, numerous other devices have been developed [2]. According to Solso (1995), mnemonics are techniques or devices either verbal or visual in nature, that serve to improve the storage of new information contained in memory. Mnemonics have been proven to be extremely effective in helping people to remember things (Bulgren, Schumaker& Deshler, 1994; Mastropieri and Scruggs, 1989:). If material is presented in a way which fits in or relates meaningfully to what is already known, then it will be retained for relatively long period of times and thus retrieval through verbal or visual clues becomes quite easy. In other words, by using mnemonic strategies, teachers can relate new information to information students already have stored in their long-term memory. For vocabulary learning, they are used to relate the word to some previously learnt information, using some form of imagery or grouping (Mastropieri & Scruggs, 1991). Thompson [22] similarly acknowledging the usefulness of mnemonic devices by stating that they can help learners learn faster and recall better by integration of new material into existing cognitive unites and by providing retrieval cues. Mnemonic devices are proved to be effective in all ages. They are, however, more useful for low level students because they are involved mostly in activities requiring them to remember and recall information [24]. Mnemonic devices have been differently classified by different scholars. Thompson [22], for example, arranges mnemonic strategies into five classes; linguistics, spatial, visual, physical response and verbal methods. Oxford [17], on the other hand, identifies four major classifications namely,

creating mental linkage, applying images and sounds, reviewing well, and employing action. While Baddeley [3] believes that mnemonic devices are classified into visual imagery strategies and verbal strategies. Despite the mentioned classifications Zarevski [24], classified mnemonic techniques in two categorizations: 1) *Verbal mnemonics*: Reduction, elaborated coding, semantic elaboration, rhyme and rhythm 2) *Visual mnemonics*: Method of spatial page organization 3) Mixed mnemonics process mnemonics: Association mnemonics, rituals, process mnemonics.

Levin [12], asserted that: Mnemonics have been studied academically and have been shown to be effective. In an experiment, subjects of different ages who applied mnemonic techniques to learn novel vocabulary outperformed control groups that applied contextual learning and free learning styles. This Study have suggested that the short term memory of adult humans can hold only a limited number of items; grouping items in to larger chunks as in a mnemonic might be part of what permit the brain to hold a larger total amount of information in short-term memory, which in turns can aid the creation of long-term memories.

Cohen and Aphek's study [5], in which participants were asked to describe what aid (i.e. mnemonic) they used in vocabulary learning, showed that different categories of associations (e.g. meaning, sound, context, mental image, personal experience, visualization of the word, word stress, physical reaction, personal name or symbols) do aid retention, and that using the original mnemonic associations is more efficient in retrieval than creating a new one or not using any association at all. This study indicated that strategies responsible for inefficient learning were weak memorization strategies and underdeveloped strategies of inductive and deductive inferenceing. Cohen and Aphek [5] noted that native English-speaking students reported using meaning, sound and image association strategies in order to enhance memory of Hebrew words [9].

Thompson [22] made an exhaustive survey and analysis of vocabulary memory strategies (mainly mnemonics). He claimed that although mnemonics are generally taken as facilitating faster learning and easier retrieval of lexical items, not all of them are equally appropriate to be used in language learning. He also mentioned that many of these techniques have not been sufficiently explored in the context of L2 learning, but one can assume that they can facilitate memorization of large amounts of vocabulary and faster recall in a given moment.

Mnemonic devices have been used for many centuries. These have proven effective in improving both immediate and delayed recall of L2 and FL vocabulary [2]. Empirical research has produced findings about the effectiveness of the mnemonic technique for different age groups and for immediate versus delayed recall. Pressley and Levin (1987) adapted Atkinson's key word method to determine whether children could benefit from this strategy. Their results were consistent with Atkinson's (1975) conclusion about the effectiveness of the mnemonic technique used for vocabulary learning. Other experimental results suggested that that even 11 year olds are capable of using mnemonic technique improved both the immediate and recall of 11- year old and students' learning French vocabulary. In the study of Avila and Sadoski [2], immediate and long-term retention of vocabulary learned by mnemonic technique was researched. Results regarding recall showed that mnemonic technique improved students' memory for definitions of the words. This study, however, adapted on two mnemonic strategies, Tick-8 [21] and G5 techniques [13].

1.8. Tick-8 and G-5 Techniques:

Tick-8 and G-5 techniques are two kinds of mnemonic strategies which involves learners more deeply in the process of learning. With a selective learning process these techniques allow learners to learn what they need to learn, when they want to learn it. Using the review scheduling system allows learners to maintain proper learning that minimizes the amount of time required to complete a card file (in G-5) and fill in the squares (in Tick-8) and will enhance the process of learning. Using flashcards and squares signing take place without effort but not incidentally. Tick-8 and G5 techniques have two different kinds of instructions based on how learners use them (different instructions of these techniques will be mentioned in the next chapter in the procedure section) and different schedule time. Although the kinds of instructions are different in these techniques but they share some similarities in their basic structure. They both have been designed with a very simple repetition algorithm according to Ebbinghaus hypothesis: 1) better memory representation (e.g. with mnemonic techniques) and 2) repetition based on active recall (esp. spaced repetition). The learning curve described by Ebbinghaus (1968), refers to how fast one learns information. The sharpest increase occurs after spaced repetitions. Like the forgetting curve, the learning curve is exponential. The forgetting curve hypothesizes the decline of memory retention in time. A related concept is the strength of memory that refers to the durability that, memory traces in the brain. The stronger the memory, the longer period of time, that a person is able to recall it. A typical graph of the forgetting curve purports to show that humans tend to halve their memory of newly learned knowledge in a matter of days or weeks unless they consciously review the learned material. In 1885, Hermann Ebbinghaus extrapolated the hypothesis of the exponential nature of forgetting. The following

formula can roughly describe it: $R = e^{-\frac{t}{S}}$ where R is memory retention, S is the relative strength of memory, and t is time. Hermann Ebbinghaus ran a limited, incomplete study on himself and published his hypothesis in 1885 as *Über das Gedächtnis* (later translated into English as *Memory: A Contribution to Experimental Psychology*). Ebbinghaus studied the memorisation of nonsense syllables, such as "WID" and "ZOF" by repeatedly testing himself after various time periods and recording the results. Ebbinghaus

hypothesized that the speed of forgetting depends on a number of factors such as the difficulty of the learned material (e.g. how meaningful it is), its representation and physiological factors such as stress and sleep. He further hypothesized that the basal forgetting rate differs little between individuals. He concluded that the difference in performance (e.g. at school) can be explained by mnemonic representation skills [8]. Tick-8 and G5 techniques despite being two kinds of memory strategies according their theoretical base, share some cognitive and metacognitive characteristic according their applications. Memory-related strategies help learner link one L2 item or concept with another but do not necessarily involve deep understanding. Various memory-related strategies enable learners to learn and retrieve information in an orderly string, images (picture of the word itself or the meaning of the word), a combination of sounds and images, body movement, mechanical means, or location. Repetition, practicing, and recognizing are among basic characteristics of Tick-8 and G5 techniques which enable the learner to manipulate the language material in direct way which make them related to cognitive strategies. Despite the mentioned characteristics, arranging a study space and schedule, monitoring mistakes, and evaluating the learning process during the learning time are the main factors that learners are encountered when they are using these techniques which related them with metacognitive strategies.

METHODOLOGY

This part includes an explanation of the steps are taken during the study and discuss the participants, materials, and procedure.

2.1. Design of the Study

This study is a type of quasi-experimental research design. Three groups of learners were selected randomly (through a simple randomization) and assigned into experimental and control groups. While Experimental groups received treatment but control group did not receive any treatment during this study.

2.2. Participants

The participants in this study were 87 female EFL learners (their L1 was Persian) participants in this study had a different age from 21- 28. They were at intermediate level. The study was conducted at Simin English teaching Institute in Talesh (in Iran). 60 learners were chose through simple randomization (flip of a coin) and then they were divided into three groups randomly (flip a coin) two experimental groups and one control group. The first experimental group was called T-8 Group and the second experimental group was called G-5 Group. The learners received three hours of English language instruction in two sessions 2 days a week. In order to get assurance as to the homogeneity of the learners they were pre-tested on their level of proficiency in vocabulary knowledge. One way ANOVA results indicated that there were no significant differences across the three groups of participants in their mastery over the EFL vocabulary knowledge ($F = .177, P = .838$). Table 3.1 represented the results. In the second session of the first week, experimental groups received their treatments while, T-8 Group (N=20) received Tick-8 technique and G-5 Group (N=20) received G-5 technique, while the control group did not receive any treatment (N=20). The researcher herself was the teacher of the all three groups and taught 360 vocabulary items to all the participants in three groups during the treatment. Words, however, taught in a same way in the classroom while the teacher read the words and then gave their meaning to Persian but experimental groups received additional treatment rather than control group.

2.3. Instruments and Materials

All the three groups completed a pre-test and a post-test on vocabulary knowledge. The pre-test was administered before the treatment sessions. The same test was repeated as post-test nine weeks after the pre-test. The interval length (nine weeks) was long enough for the participants to forget the tests, because the same test was utilized in both tests. The test-retest reliability estimate for these tests indicated that the all of instruments were reliable (Table 3.2).

The vocabulary items used in the study were 360 items that were selected from 504 Essential Words Tick-8 book [21]. These words were selected according to the words arrange in Tick-8 book. The words in this book are not arrange with an alphabetic order so, researcher in order to make a similar word list for all the groups forced to select vocabulary items respect to the design of the Tick-8 book. Thus, these words selected from lesson one to lesson 18. The researcher selected 360 vocabulary item, due to the time was devoted to the study. Three Multiple-choice item tests and one Matching test were selected as instruments of this study, which through them subjects were asked to select answer from several options for the given word. The number of questions was 80 and one point awarded to each correct answer.

Table 2.1. Reliability Statistics

Cronbach's Alpha	N of Items
.878	5

2.4. Procedure

The entire study took 10 weeks, and all the participants were taught 20 vocabulary items each session while, all groups of participants were taught all words. In the second day of the first week all the participants

received the word lists (is explained in previous section). The participants in the experimental groups (N=40) received their specific techniques. 20 G5 boxes and 20 Tick-8 books were prepared for the experimental groups in order to practice stages of the study as mentioned in treatment section. The participants in the G-5 group (N=20) received G5 boxes and participants in the T-8 group (N=20) received TICK-8 books. Then students in experimental groups familiarized with their instruction in a 10 minutes introduction. The participants in the control group did not receive any technique. The total sessions of the study were 20 sessions (two days a week) while one session devoted to pre-test and one session devoted to post-test, therefore, the total sessions that devoted to the treatments were 18 sessions. Each session took one and half an hour out of which 30 minutes were devoted to vocabulary teaching.

2.5. Treatments

In this study the usual way of vocabulary teaching was used for all the groups. The teacher first read the word items and then gave their meaning to all the groups. 20 word for each session. Despite the same type of teaching way to all the groups, T-8 and G5 groups received their treatments. 20 Tick-8 books were given to 20 participants of T-8 experimental group and 20 participants in G5 group received 20 G5 boxes, while control group did not receive any treatment.

Principles of accumulation of vocabulary according to G-5 technique for G-5 group: G-5 box contained five compartments. Twenty flash cards were written by learners in the classroom according to the given word lists every session. Participants put the written cards into the first compartment. This compartment contained the flash cards, which were repeated every day. The flash cards that had been correctly answered by participants in the next day were moved to the second compartment. The repetition interval in the second compartment is set to two days. Flash cards that were successfully answered in the second compartment were moved to the third one etc. And the teacher tried to check their boxes in order to get assured they used their instructions at home. Principles of accumulation of vocabulary according to Tick- 8 book for T-8 group: Each page of the Tick-8 book consists of 20 vocabularies (their vocabularies arranged according to 504 absolutely essential words book for EFL learners). The meaning of these vocabularies is mentioned in the back of the same page and there are 8 squares under each vocabulary. As Zahedi [21] claimed "This is sufficient participants only looked at each word in the first day because learners whom use this technique do not need to memorize word items, because learning take- place for them only through reviewing. In the second day squires that had been correctly answered are signed with "Tick" sign for the first square from the left side. On the contrary if they did not understand the meaning of them they must use "F" sign for the first square from the left side and then they can look at the meaning of the missing words. With these principles, they reviewed the rest of the words. After 8 days they marked all the 8 squares with "Tick" or "F" signs. Participants in this group reviewed 20 items per session in the classroom and then continued reviewing the instructions at home. The teacher each session checked their book in order to get assurance learners used their instructions at home.

3. ANALYSES AND RESULTS

The aim of this study is two fold: (1) to explore whether Iranian EFL learners' vocabulary knowledge is effected by Tick-8 and G-5 techniques and (2) whether these techniques will improve learners' vocabulary knowledge over time differently. In this section, the results of the data collected during the study and the statistical analyses will be presented. Firstly, total descriptive statistics for pre-test and post -test for all of groups will be presented. Then the result of test of between subjects and post-hoc Duncan tests that were run to show the differences across two times (the pre-test and pre-test) and three groups will be presented.

Table 3.1. Descriptive Statistics for Total Scores

	N	Range	Minimum	Maximum	Sum	Mean	Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
Time	138	1	1	2	198	1.43	.042	.498
Group	138	10.5	1.0	11.5	438.0	3.174	.2672	3.1393
Score	138	10.00	10.00	20.00	1839.75	13.3315	.20435	2.40061
FB	120	10.00	10.00	20.00	1580.00	13.1667	.29189	3.19751
S	120	11.00	9.00	20.00	1575.00	13.1250	.26051	2.85375
A	120	12.00	8.00	20.00	1546.00	12.8833	.27095	2.96813
M	120	10.00	10.00	20.00	1561.00	13.0083	.24412	2.67417
Valid N	120							

Table 3.2. Test of between subjects for Fill in the Blank Test

Source	SD	df	MS	F	Sig
Group	143.817	2	71.90	37.603	.000

Table 3.3. Post –hoc Result for the Effect of Time for Fill in the Blank Test

(I)Factor	(J)Factor	Mean Difference (I-J)	Std. Error	Sig
Time1	Time2	-3.0500	.654	.000

To report the differences across two times (the pre-test and post test) the post –hoc Duncan was run for Fill in the blank test (see Table 3.3) and revealed there is a statistically significant difference among time 1 and time 2. According to test of between subjects for Fill in the blank test (see Table 3.4.) the result revealed significant difference between groups in this test (F=37.60, P= .000).

Table 3.4. Test of Between Subjects Effects for Synonyms Test

Source	SS	df	MS	F	Sig
Group	103.850	2	51.925	33.991	.000

Table 3.5. Post –hoc Result for the Effect of Time for Synonyms Test

(I)Factor	(J)Factor	Mean Difference (I-J)	Std. Error	Sig
Time 1	Time 2	-2.6224	.60130	.000

It can be understood from Table 3.5 that the test of between subject effects revealed a significant difference between the subjects of Antonym test at 0.00 level (F=23.17, P=.000). As Table 3.6 showed, the result of post-hoc Duncan confirmed that there was a statistically significant difference among time 1 and time.

Table 3.6. Test of Between Subjects Effects for Antonyms Test

Source	SS	df	MS	F	Sig
Group	94.1	2	47.058	23.1	.000

Table 3.7. Post –hoc Result for the Effect of Time for Antonyms Test

(I)Factor	(J)Factor	Mean Difference (I-J)	Std. Error	Sig
Time 1	Time 2	-3.1224	.42030	.000

The post-hoc comparisons for Antonyms Test revealed a significant difference between time 1 and time 2 (see Table 3.7). Based on the result of the test of between subjects effects (see Table 3.8), the between groups differences in the matching test was significant at 0.01 level (F= 21.5, P= .000).

4. DISCUSSION AND CONCLUSION OF THE STUDY

Considering the results and interpretations of the tests and total scores shown in the previous chapter the research question can be answered now:

1) Does Tick-8 technique have any effect on Iranian EFL learners’ vocabulary knowledge?

The findings of the present study prove that there is a significant difference between scores of participants of T-8 experimental group and control group. Then results reject the related null hypothesis of the study and confirm the alternative one. So, it can be said that Tick-8 technique has effect on Iranian EFL learners’ vocabulary knowledge.

2) Does G-5 technique effect on Iranian EFL learners’ vocabulary knowledge?

As the results of the study indicate, there is a significant difference among scores of participants in G5 and control groups. Thus, results reject the related null hypothesis of the study and confirm the alternative hypothesis with respect to the related research question. So, according to the results it can be concluded that G5 technique have effect on Iranian EFL learners’ Vocabulary knowledge.

3) Do Tick-8 and G-5 techniques affect Iranian EFL learners’ vocabulary knowledge differently?

The results of the study show a gain for both experimental groups, but subjects in T-8 experimental group outperformed subjects in G5 group. The results reject the related null hypothesis and confirm the alternative one. In other words, Tick-8 and G-5 techniques have significant effect in increasing Iranian EFL learners’ vocabulary knowledge, while Tick-8 is more effective than G5 on learners’ retention of vocabulary items.

While this study was conducted among intermediate level subjects’ the results of this study are in contrast with Pavicic [18]. He stated that complex strategies, those demanding a deeper and more active manipulation of information can be used by more proficient learners of the target language. One of the main points in this study is about the different results gained by two experimental groups, Also answering to this question that why the result of two experimental groups are different is not necessary respect to the research question in this study but these differences maybe caused, by the different kind of schedule time or instructions of these techniques despite their having same theoretical base. Clearly, better learning resulted when learners encountered with a

technique that predict the time of learning for them. So the result of this study can be in line with Thompson's [22] claimed that, all the mnemonics strategies are not useful in learning vocabulary items. Although these techniques both improved learners word knowledge but the amount of efficiency with Tick-8 was more significant, thus, it can be considered according to Thompson "that the efficiency of these techniques depends on numerous factors: the time the learner invests in acquiring the mnemonics, the learners' capacity for creating images, proficiency level, learning style, metamemory, cultural elements and situation demanding the retrieval of a given word."

In conclusion, the argument raised in this paper indicate that Ebbinghaus's (1968) research and theory is not only of historical importance, but also valuable for current research on foreign language learning.

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