VOCABULARY LEARNING: A COMPARISON OF LEARNERS OF ENGLISH AS A SECOND AND THIRD LANGAUGE

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The purpose of this study is to compare the vocabulary learning of monolingual learners of English as a second language with bilingual learners of English as a third language. The study is based on data from 52 monolingual Persian-speaking learners of English and 45 bilingual Azeri-Persian-speaking learners of English. All the participants were females studying English as a foreign language at two universities in Iran. The informants were exposed to two incidental and four intentional vocabulary learning exercises. They were then measured at four difficulty levels using the Vocabulary Knowledge Scale (Paribakht & Wesche, 1997). Variables such as English language proficiency, intelligence, family educational background, gender, age and type of university were controlled. The third language learners outperformed their second language counterparts at all word difficulty levels. The findings are discussed in relation to bilinguals' higher level of executive and inhibitory control.

KEY WORDS: bilingualism; vocabulary learning; second language learning; third language learning; inhibitory control.

INTRODUCTION

The advantages of being bilingual over monolingual, in a number of areas, have been supported by many studies in the past few decades, especially after the revolutionary work of Peal and Lambert (1962). A large number of these studies have focused on the metalinguistic advantages of bilingualism. For example, Hamers and Blanc (2000) reported that bilingual children performed better on problem-solving tasks than their monolingual peers. The authors attributed these results to the greater metalinguistic competence and better developed creative processes of bilinguals.

Some studies have focused on the effect of bilingualism on third language (L3) learning. Perhaps the first pioneers of these studies were Ringbom (1987) and Thomas (1988). Thomas compared monolingual English college students with two English-Spanish bilingual groups in learning French. The first bilingual group received no formal training whereas the second bilingual group received a minimum of two years' formal training in Spanish. The results indicated that the bilinguals with the formal training outperformed the other two groups in

learning grammar but there was no significant difference between the bilingual groups in learning vocabulary, although the two bilingual groups outperformed their monolingual counterparts. Ringbom compared monolingual Finnish with bilingual Finnish-Swedish speakers in learning English as a foreign language. The result of this study also indicated a bilingual advantage.

Recently many studies have continued this line of research. For example, Sanz (2000) compared 124 Catalan-Spanish bilinguals with 77 Spanish monolinguals. The general English proficiency of the participants was measured using grammar and vocabulary tests, in which variables such as socioeconomic background, motivation, attitudes, general intelligence and exposure to English were controlled. The bilingual participants scored higher on the tests than their monolingual peers. Muñoz (2000) studied bilinguals knowing Catalan and Castilian in third language acquisition (TLA). The researcher tested three groups (aged nine, 12 and 17) on different English proficiency tests: dictation, cloze, multiple-choice grammar and listening comprehension. The results showed that highly proficient bilinguals, those who had a good competence in Catalan and Castilian, scored higher than the monolinguals. In addition, the oldest group performed better on dictation, cloze and multiple-choice grammar tests.

As a result of these studies TLA is today considered to be different from second language acquisition (SLA). Jessner (2008) points out the complexity of TLA and mentions that there are only two routes in SLA: to learn the two languages either simultaneously or consecutively. However, in TLA there are at least four types of ways to learn a language: simultaneous acquisition of L1/L2/L3; consecutive acquisition of L1, L2 and L3; simultaneous acquisition of L2/L3 after learning the L1; and simultaneous acquisition of L1/L2 before learning the L3.

Many scholars have tried to explain why such differences exist. For example, in a series of studies, Bialystok (2001) found that bilinguals were better able to control their attention and performed significantly better than their monolingual counterparts on tasks in which they were given misleading information. She first started with children and elaborated on 'representational analysis' versus 'attentional control' (p.147). Bialystok considered the results of several studies and concluded that bilingual children have advantages over monolinguals in tasks which require a high level of control of attention (attentional control); those that include misleading, distracting or irrelevant information. For example, logical reasoning in which the participants have to consider several ideas – some of them perhaps irrelevant or misleading – before arriving at a correct conclusion or decision.

Later, Bialystok and her colleagues found that this advantage continued into adulthood for those aged 30 to 45 or even older 60 to 88 (Bialystok, Craik, Klein & Viswanathan., 2004). Interestingly, these researchers found that bilingualism attenuates the negative effects of aging on cognitive control. That means that older bilinguals still outperformed their monolingual peers on the above tasks and aging didn't make this advantage disappear. In another study, she and her colleagues presented evidence from magneto-encephalography (MEG) analyses and found the same result (Bialystok et al., 2005). She maintains that this enhanced cognitive control is demonstrated by evidence from psycholinguistic studies showing that the two language systems of bilinguals are constantly active even when they are asked or need to use only one. In other words, bilinguals can suppress the unwanted language and focus on the language that is needed. She concludes that from their early years bilinguals have the massive advantage of exercising inhibitory control and therefore perform better than their monolingual peers in cognitive tasks that involve similar processing.

Although most studies in the literature indicate a positive role for bilingualism in TLA, some studies indicate that bilingualism has either no or even negative effects.

Van Gelderen et al. (2003) compared the English (foreign language) reading comprehension of 397 Dutch monolinguals and Turkish or Moroccan-Dutch bilinguals in the Netherlands. They used a componential analysis to find which factor was responsible for a difference in the reading comprehension of the participants. They realised that bilinguals were weaker in L3 reading than monolinguals. They claimed that the reasons might include that the Turkish and Moroccan-Dutch bilinguals were weaker in reading comprehension in Dutch; that the socioeconomic status of bilinguals was not controlled; and that English is closer to Dutch than to either Turkish or Moroccan.

Sanders and Meijers (1995) compared 15 Dutch monolingual speakers with 46 Turkish-Dutch and 31 Moroccan-Arabic bilingual speakers in learning English as either a second or third language. The researchers investigated 10 different elementary schools in the Dutch cities of Utrecht, Tilburg and Nijmegen. Socioeconomic and intelligence factors were controlled but the researchers found no significant difference between bilinguals and monolinguals on several English proficiency tests. The participants were all nearly balanced but the authors suggested that the context of acquiring a third language for these students was subtractive rather than additive. The mother tongues of these bilinguals were not prestigious and were considered to have a lower status than Dutch as a second language.

Okita and Jun Hai (2001) conducted a study of Chinese monolingual speakers and Chinese-English bilinguals in the learning of the Japanese writing system, Kanji, which is close to the Chinese writing system, Hanzi. In this study, monolinguals attained better scores more than

their bilingual counterparts. The authors explained that the bilingual learners were from Singapore and did not have a strong command of the Chinese writing system.

The purpose of the current study is to shed more light on this controversy in the literature by comparing the bilingual and monolingual learners of English in learning vocabulary. This study was conducted in two cities in Iran: Tabriz and Isfahan. In Tabriz the majority of people know two languages, Azeri and Persian. They use their mother tongue, Azeri, in their social interactions and use Persian formally in schools. In Isfahan, the majority of people use only Persian both in their social interactions and at school.

THEORETICAL FRAMEWORK

As mentioned in the previous section, many studies (Muñoz, 2000; Sanz, 2000) have examined the effect of bilingualism on additional language learning. In these studies, L3 learners were compared with their L2 counterparts. The results of these studies showed that bilinguals performed significantly better on general proficiency tests than their monolingual peers.

Many of these studies have also examined the effect of bilingualism on specific aspects such as L3 lexicon and vocabulary learning. For example, Keshavarz and Astaneh (2004) found that L3 learners of English outperformed their L2 peers in learning vocabulary. Their study was conducted in Iran with two groups of bilinguals: Azeri-Persian and Armenian-Persian. The researchers also had a monolingual group of Persian speakers. The group of Armenian-Persian speakers was considered more balanced since they acquired their first and second languages both orally and academically, while the Azeri-Persian speakers acquired their L1 only orally in a natural setting. The authors used the Controlled Productive Ability Test (CPAT) designed by Laufer and Nation (1999) to measure the participants' vocabulary knowledge. Variables such as gender, age, educational level and exposure to English were controlled. They found that the more balanced bilinguals (Armenian-Persian) significantly outperformed the Persian group. They were also more successful than their Azeri-Persian counterparts on the vocabulary test. The researchers also found that Azeri-Persian bilinguals significantly outperformed their monolingual (Persian) peers.

The purpose of the current study is also to examine the effect of bilingualism on learning English vocabulary as a foreign language. However, instead of examining the participants cross-sectionally as Keshavarz and Astaneh did, the teacher/researcher will expose the informants to two incidental and four intentional vocabulary learning exercises. Many scholars (Fraser, 1999; Paribakht & Wesche, 1997) have distinguished between intentional and incidental vocabulary learning. Hatch and Brown (1995, p. 368) define intentional learning as 'being designed, planned for, or intended by teacher or student' and incidental

learning as a type of learning that is a 'byproduct of doing or learning something else'. These scholars believe that the optimal method is a combination of the two. Therefore, it would be useful to know whether L3 learners can still outperform their L2 counterparts when an optimal method of vocabulary learning is used.

In addition, in the current study, the intelligence level of the participants is controlled. Many studies in the literature have considered the effect of intelligence on foreign language learning. In the Basque area of Spain, Cenoz and Valencia (1994) examined the effect of intelligence, gender, age, socioeconomic level, attitude, motivation, exposure to the target language and bilingualism using several English achievement tests. Apart from bilingualism, intelligence was found to be one of the main predictors of the participants' high level of achievement in learning English as foreign language (EFL).

Furthermore, the CPAT only measures productive vocabulary knowledge, however, it is also necessary to have a receptive assessment since an individual may know a word receptively but not be able to produce it in a sentence. As Paribakht and Wesche (1997) argue, words are known to differing degrees ranging from recognition, to receptive and finally to productive level. It may be more suitable to use the Vocabulary Knowledge Scale (VKS) measurement to record the various levels of knowing a word. Considering all of the above factors, this study attempts to answer this question:

> Do L3 learners of English (educated only in their L2) outperform L2 learners of English (educated in their L1) when learning vocabulary in an EFL classroom as measured by the VKS?

METHOD

SETTING

According to Dehghani (2002) Persian is an Indo-Iranian language (a subgroup of the Indo-European family). Persian is the official language of Iran but is also used in neighbouring countries such as the United Arab Emirates and Turkey. Old Persian was spoken during the Achaemenid dynasty and written in cuneiform script. It evolved into Middle Persian and was written in an ideographic script. Modern Persian began to develop from 900 A.D. and since the Islamic conquest of Iran in the seventh century Persian has been written in the Arabic script. According to Ethnologue (2007), Persian is used throughout Iran and is most heavily concentrated in the central, south-central and north-eastern regions.

According to Ethnologue, Azeri (or Azerbaijani) is used in many parts of Iran, particularly in the northwest provinces of East and West Azerbaijan. Although Azeri is not Iran's official

language, its native speakers outnumber those of the official language of Persian (23,500,000 for Azeri compared to 22,000,000 for Persian). Due to internal migration, there are significant numbers of Azeri speakers in Tehran, the capital. Some Azeri speakers also live in other provinces of Iran such as Markazi and Fars.

The writing system is officially Latin in the Republic of Azerbaijan, but the Cyrillic alphabet, due to the influence of the former Soviet Union, is still widely used. In Iran, the Arabic script is used. The children in Azerbaijan provinces in Iran do not have any schools using their native language; instead they go to Persian schools. As a result, they become bilingual by speaking their mother tongue, Azeri, from birth and learning to speak and write Persian at school.

H. Javadi (1996) states that there are three main periods in the history of Azeri publications in Iran: from the earliest times to leading up to the Pahlavi dynasty; the period of the Pahlavi dynasty; and from the installation of the Islamic Revolution to the present. According to A. Javadi (1989), during the Pahlavi dynasty (1925-1979) the language was banned and Persian was considered the only official language. This was a dark era for Azeri speakers as they were not allowed to use their native language, even to speak it at school.

After the Islamic revolution of 1979, the ban was lifted and according to Article 15 of the 1979 constitution, publication in the Azeri language was permitted and schools were allowed to be established using Azeri and other minority languages as the language of instruction. Although such schools have not yet been established, a number of publications including books, newspapers and magazines were published in Azeri immediately after the revolution. After some years, however, these publications were stopped due to various political reasons.

PARTICIPANTS

Ninety-seven participants took part in this study. Forty-five were bilinguals (Azeri-Persian) and the remaining 52 were monolinguals (Persian only). The bilingual participants came from Tabriz, a city in northwest Iran and the monolinguals were from Isfahan, a city in the centre of the country. The participants were studying EFL in Azad (private) university and were in their second year.

The informants were all female between the ages of 19 and 25. To ensure they were at a similar English proficiency level, a TOEFL practice test was administered. Moreover, to make sure they had a similar level of intelligence, a Raven test was conducted. In addition, the family educational background of the participants was also similar. This variable was controlled through a questionnaire which will be explained in detail in the following section.

The majority of the students in Tabriz were bilingual with Azeri as their mother tongue and Persian as their L2. However, one of the informants stated that she had been in Tabriz for five years and her mother tongue was Persian. Because of this linguistic background difference, she was excluded from the study. There were also some Kurdish-Persian speaking students; they were also excluded. Moreover, some of the students indicated that one of their parents was Kurdish and the other was Azeri and as a result they knew both Kurdish and Azeri. Because of their language background difference from Azeri-Persian participants, these Kurdish-Azeri speakers were also excluded from the study.

In Isfahan, the majority of the students were monolinguals (Persian speakers) and the rest were Luri-Persian bilinguals. Because of their different linguistic background, the Luri-Persian bilinguals were excluded from the study. In addition, the majority of the students were female. In the bilingual group, in Tabriz, there were 10 males and in the monolingual group, in Isfahan, there were two. To control gender, the males were excluded from the study.

The first part of this study was done in Azad University (Tabriz branch) where the majority of the students were Azeri-Persian speakers. In Iran, there are two types of universities: Azad (private) where students pay tuition fees, and Dolati (government) where tuition is free. The second part of this study was conducted at another Azad University in Isfahan. This city has a majority of Persian speakers. As in Tabriz, the students were in their second year at university and were studying a four-unit course titled Reading Comprehension III.

The terms lasted 16 weeks with 32 sessions in total. Every week the students attended two sessions, each lasting 90 minutes. The research was conducted during class time. The treatment was given to all students regardless of whether they were participating in the study. The same teacher/researcher conducted the research and to avoid the practice effect the same procedure and instructions were used for both groups.

INSTRUMENTS

Six instruments were used in this study:

1. Questionnaire
2. TOEFL practice test
3. Raven test
4. Six passages
5. Intentional vocabulary tasks
6. Vocabulary Knowledge Scale

QUESTIONNAIRE

A survey questionnaire was used in this study to ascertain how many languages the participants knew and how well they knew the four main language skills: speaking, listening, writing and reading. The participants had to name the language(s) they knew and rate themselves for each of the skills (Romaine, 1995) on a Likert scale ranging from *a little* to *fluently* (questions 11 and 12). The questionnaire prepared by Pilar and Jorda (2003) was examined and extra questions added. For example, what their families' native tongues were (questions 4 and 5) and what language(s) they used at work or school (questions 7, 8, 9 and 10). The questionnaire also asked the participants' age and gender (questions 1 and 2) and their families' educational level and occupational background (questions 13, 14 and 15). The questionnaire was designed in Persian to make sure the participants were able to understand it.

The purpose of this questionnaire was to ensure that the language background of the participants in the first group was the same (Azeri-Persian). It was also used to ensure that the language background of the second group was the same (only Persian). The questionnaire was first piloted with 40 students (17 monolinguals and 23 bilinguals). The participants in the pilot study did not participate in the main study. However, they had the same characteristics as the participants in the main study and both groups were studying at the same universities in the same year of study (second year studying EFL). The purpose of the pilot study was to make sure the main study's participants could complete the questionnaire without any difficulty.

The participants were asked to complete the questionnaire and raise their hand if they faced a problem or had a question. No one indicated they had a problem or question. The questionnaires were analysed and judged to meet the study's intended purposes. To see a full version of the questionnaire and its translation, refer to the Appendix.

ENGLISH PROFICIENCY TEST

A TOEFL practice test was used in this study to evaluate the participants' English proficiency level. The aim of using this test was to make sure the participants in both groups (L3 learners and L2 learners) had an equivalent level of English language proficiency. The Structure, Reading Comprehension and Listening sections of the test were used because of the objectivity of their scoring procedures.

INTELLIGENCE TEST

An intelligence test (The Raven's Progressive Matrices Test) was used to control the intelligence level of the participants. The Raven test evaluates the participants' nonverbal

intelligence level and the scoring procedure is objective. This test was chosen because it could be completed either individually or in groups and was easy to administer and explain. It comprises incomplete geometrical abstract figures and is highly suitable to measure the 'g' factor (IQ) because it does not need any verbal ability (Lasagabaster, 2000).

SIX PASSAGES AND THE TARGET WORDS

The purpose of this section of the study was to determine the passages and target words for the main study. Six passages were given to the participants. Four were extracted from *English Interaction* (Andrews & Young, 1999) and two from *Developing Reading Proficiency* (Tahririan, 1993). The books order the passages from easy to difficult. In the current study, the passages chosen were at an intermediate level of difficulty. The participants were asked to read the passages and circle any unfamiliar words without avoiding any words or trying to infer their meanings.

To compare the two groups, their common words were selected at four levels. First, the common words between the two groups which were unfamiliar to 60% or more of the participants in each group were selected. Words were then selected at the increased level at 70% and above, 80% and above and finally 90% and above. There were 50 common words at the level of 60% and more; 20 at 70% and more; 14 at 80% and more; and six at 90% and more.

First, the participants' VKS tests were scored as explained above. The researcher scored the papers and to ensure reliability, all the target words were first defined using the *Oxford Advanced Learner's Dictionary* (Oxford University Press, 1995) and the correct meanings selected according to the appropriate context.

Because the participants were asked to provide the Persian translations of these words on their VKS, the Persian translations (using the *Aryanpur* English to Persian dictionary [Amir Kabir, 2002]) were also found for these words. The target words and their meanings were then written on separate pieces of paper and the participants' papers corrected according to this list. To avoid scoring mistakes, the researcher scored the papers three times. All the papers were scored anonymously.

INCIDENTAL VOCABULARY LEARNING TASKS

The participants were exposed to two incidental vocabulary learning tasks: Essay Type Questions; and Summary tasks. In the first incidental vocabulary learning task, the participants were asked to read the six passages and answer some essay type questions at the end of each. In the second incidental vocabulary learning task, the participants were asked to

read the same passages and write a summary for each. They were instructed to write summaries of between four to seven lines depending on the length of the passage.

INTENTIONAL VOCABULARY LEARNING TASKS

In this study, the participants were exposed to four different intentional vocabulary tasks:

1. Underlying target words
2. Matching meaning
3. Parts of speech
4. Unscrambling

In the first exercise, the participants were given the six passages with a list of target words related to each. They were asked to find the words and underline them. In the second exercise, the participants were given the same six passages followed by the target words with their definitions beside them. There were more definitions than target words. The participants were asked to match the target words with their correct definition. In the third exercise, a matrix was given to the participants. It contained four columns, each headed by a grammatical category: Noun, Verb, Adjective, and Adverb. In each row, the target words appeared under the same grammatical categories as used in the passages. The participants were asked to think about the other grammatical functions and provide the correct form in each cell. The participants were told that in some cases it was not possible to provide a grammatical function and to indicate this they needed to draw a line in the appropriate box. This exercise was adapted from Wesche and Paribakht (2000) with one more cell (Adverb) added. The matrix below is an example of this exercise.

Noun	Verb	Adjective	Adverb
Conviction			
		Spinal	
Posture			
		Aligned	

FIGURE 1 Word class exercise
Adapted from (Wesche & Paribakht 2000, p. 202)

In the last exercise, each target word was used in a sentence. They were scrambled before being presented to the participants who were required to unscramble them by writing them in

the correct order. For example, the participants were asked to unscramble the following string of words into a correct sentence:

he / and / very / meal / after / the / sluggish / heavy / felt

Sentence: _____.

THE VOCABULARY KNOWLEDGE SCALE

The VKS (Paribakht & Wesche, 1997) was used as a post-test to measure the participants' vocabulary knowledge. This test measures the participants' recognition, receptive and productive vocabulary knowledge. The target words appear vertically and five levels of vocabulary knowledge are listed horizontally at the top of the test. The participants are required to indicate their knowledge of the target words in the appropriate cell (see Appendix).

The VKS indicates how well the informants have learned the new words. Following the scoring procedure, the participant achieves 1 point if she marks category I and 2 points by marking category II. A score of 3 is obtained if a correct synonym or translation is given for either category III or IV. A score of 4 is given for category V, if the word is used in a sentence demonstrating the learner's knowledge of its meaning in that context but with inaccurate grammar. For example, a target noun used as a verb: 'This famous player announced his retire' or a mistakenly conjugated or derived form is used, for example 'losed' for 'lost' (Paribakht & Wesche, 1997, p.180). A score of 5 is given when the target word is used correctly – both semantically and grammatically – in a sentence, even if the other parts of the sentence contain errors. If the participant provides an incorrect definition or synonym for categories III or IV, or writes a sentence conveying an incorrect meaning for category V, she will receive only 2 points. Figure 2 shows the scoring procedure.
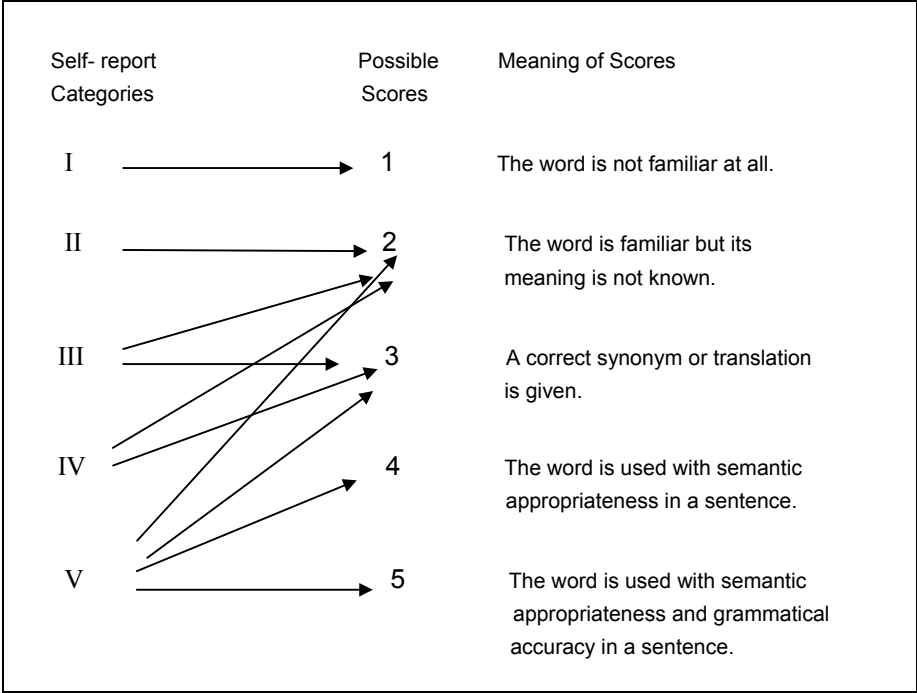
Self- report Categories	Possible Scores	Meaning of Scores
I	1	The word is not familiar at all.
II	2	The word is familiar but its meaning is not known.
III	3	A correct synonym or translation is given.
IV	4	The word is used with semantic appropriateness in a sentence.
V	5	The word is used with semantic appropriateness and grammatical accuracy in a sentence.

Figure 2 VKS scoring procedure (Paribakht & Wesche, 1997, p. 181)

PROCEDURE

The first part of this study was carried out with Azeri-Persian participants in Tabriz. On the first day of the first week, the teacher/researcher explained the study to the students. The questionnaire was then distributed. At this stage, the participants were asked to raise their hands if they did not understand anything or faced any difficulties in completing the questionnaire. No problems were raised or questions asked and the participants completed their questionnaires.

In the following week, a TOEFL practice test was administered to the participants. Because of the period of time between the two sessions, the participants were given the Structure section of the test (25 minutes) in the first session. In the second session they received the Reading Comprehension (45 minutes) followed by the Listening section (40 minutes). The test was administered according to the test instructions including strict time limits.

In the third week, the participants were asked to complete the Raven test. All the papers were collected immediately after the 40-minute time limit had expired. The informants were then given the six passages. They were asked to read the passages and circle any word whose meaning was unknown to them. They were asked to try not to infer the meanings of words or to avoid any words but only circle those unknown to them.

In the fourth week, the essay type questions of the incidental reading tasks were given to the participants. Then, the second incidental reading task was conducted. In the fifth week, the informants received the intentional exercises. After two weeks (during which the participants continued with their regular curriculum) they received their post-test (the VKS test). The teacher/researcher taught the students' normal curriculum during the other weeks. The second part of this study was carried out with Persian participants in Isfahan using the same procedure followed by the Azeri-Persian group. The following table summarises the procedure.

Table 1 *The procedure*

Week		Activity
1	a)	Introduction to the study
2	b)	Questionnaire
	a)	TOFEL Structure section (25 minutes)
	b)	TOFEL Reading Comprehension and Vocabulary section (45 minutes)
	c)	TOFEL Listening section (40 minutes)
3	a)	Raven Test
	b)	Locating the target words
4	a)	Incidental reading (two tasks)
5	a)	Intentional exercises (4 tasks)
6	a)	Regular class
7	a)	Regular class
8	a)	Post-test (VKS)

RESULTS

The results of the TOEFL practice test, the intelligence test (Raven) and the family education comparison of the two groups indicated that the difference between the participants was not significant. Therefore, the two groups were equivalent with regard to English proficiency, intelligence and family educational background.

For the TOEFL practice test, the means of the two groups were 410.80 (SD=37.76) for the L3 learners and 399.38 (SD=34.84) for their L2 peers. However, a two tailed t test (t(95)=1.55, p>.05) showed this difference was not significant meaning the two groups were at an equivalent proficiency level.

Similarly, on the Raven test, the L2 learners gained a slightly higher mean of 118.17 (SD=7.99) than their L3 counterparts with a mean of 115.71 (SD=10.56). However, a two tailed t test (t(95)=1.31, p>.05) showed this difference was not significant meaning the two groups were at an equivalent level of intelligence. Later, to see whether the participants' family educational level was equivalent, the participants' maternal and paternal educational levels were added together and the mean of the L2 family educational level (M=3.80, SD=1.43) was found to be higher than that of their L3 counterparts (M=3.44, SD=1.42). A two tailed t test (t(95)=1.22, p>.05) showed that the difference between the two groups was not significant; indicating they had equivalent family educational backgrounds.

THE COMPARISON RESULTS

To compare the two groups, the words which were unfamiliar to both groups were identified. These words were then put into four levels of difficulty. The first level was those words unfamiliar to 60% or more of the participants in both groups. The level of unfamiliarity of the words was then increased for the remaining three levels to 70% or more, 80% or more and 90% or more. For example, there were 50 common words that 60% or more of the participants in each of the two groups were unfamiliar with. The VKS scores of the two groups were calculated and four two-tailed t tests were conducted at the four difficulty levels mentioned above. Table 1 shows the results of these comparisons.

Table 2 *The inferential results of the four word difficulty levels*

Comparisons	*t* observed	Effective size (*r*)	Mean (*M*)	Standard deviation (*SD*)
60% Difficulty level	3.76*	.36	L2=102.62 L3=115.07	L2=17.95 L3=14.10
70% Difficulty level	3.52*	.34	L2=39.48 L3=44.42	L2=6.99 L3=6.80
80% Difficulty level	2.51*	.25	L2=27.27 L3=30.11	L2=6.11 L3=4.87
90% Difficulty level	2.84*	.28	L2=11.92 L3=13.69	L2=3.09 L3=3.01

*p<.05

At the 60% difficulty level, the mean for the L2 learners was 102.62 (*SD*=17.95) and 115.07 (*SD*=14.10) for the L3 counterparts. The effective size was .36. The *t* test (*t*(95)=3.76, *p*<0.5) shows that this difference is significant. Therefore, the L3 group significantly outperformed their L2 peers. At the 70% difficulty level, the mean for the L3 learners (*M*=44.42, *SD*=6.80) was higher than the mean for the L2 group (*M*=39.48, *SD*=6.99) with an effective size of .34. The *t* test (*t*(95)=3.52, *p*<0.5) shows that L3 learners performed significantly better. At the next level (80%), the L3 group gained a mean of 30.11 (*SD*=4.87) and the L2 group achieved a mean of 27.27 (*SD*=6.11) with an effective size of .25. The *t* test (*t*(95)=2.51, *p*<0.5) again shows that this difference was significant. Finally, at the 90% difficulty level, the L3 group mean was 13.69 (*SD*=3.01) and that of the L2 learners was 11.92 (*SD*=3.09) with an effective size of .28. The above statistical analyses show that the L3 group significantly outperformed their L2 peers at all difficulty levels.

DISCUSSION

The results of this study indicated that the Azeri-Persian speakers outperformed their L2 peers in learning the target words at all four difficulty levels. These results are consistent with similar studies done in Iran by Keshavarz and Astaneh (2004) and Modirkhamene (2006). Keshavarz and Astaneh found that the Azeri-Persian speakers outperformed their Persian peers on a CPAT at the 2000 and 3000 word levels. Moreover, in Modirkhamene's study, the Azeri-Persian speakers outperformed their Persian counterparts on the First

Certificate English (FCE) tests of reading comprehension. The results were also similar to those obtained by Thomas (1988). In that study, the Spanish-English bilinguals who were only orally proficient in the two languages outperformed their monolingual English-speaking counterparts in learning French vocabulary.

The advantage of bilingualism in learning a foreign language in the current study or similar studies by many scholars around the world may be due to what Bialystok (2001) calls the inhibitory control by bilinguals. As mentioned earlier, Bialystok shows that bilinguals from the early years of life demonstrate an advantage over monolinguals on tasks that involve misleading or irrelevant information. She also shows that bilinguals can suppress unwanted information significantly better than their monolingual peers, and these advantages persist even into adulthood. She cites evidence from psycholinguistic and encephalography studies to show that the two language systems of bilinguals are constantly activated even when only using one language. She maintains that from the early stages in their lives bilinguals exercise inhibitory control and this results in better cognitive development. This explanation may apply to the current study, especially when the participants were involved in incidental vocabulary learning. The participants had to infer the correct meanings of several new words from the context and deal with several ideas and clues – some of which were irrelevant and/or misleading. Moreover, intentional vocabulary learning, a part of the current study, is at least to some extent a cognitive process. As Bialystok's research shows, in such cognitive processes bilinguals have an advantage over monolinguals.

CONCLUSION AND SUGGESTIONS FOR FURTHER STUDIES

The results of the current and similar studies indicate that L3 learners outperform L2 learners in learning a new language. This may be due to the fact that bilinguals grow up using two language systems. They also begin to exercise suppression of the language they do not need when they are using their other language; although as Bialystok's research shows, both language systems remain active. These result in superior cognitive and metalinguistic abilities in bilinguals compared to monolinguals which may in turn lead to more effective abilities in learning a new language, especially in classroom situations where cognitive abilities are perhaps more involved compared to natural settings.

The current study has shed some light on the area of the effect of bilingualism on learning an additional language, especially in the area of vocabulary learning, but it has certain limitations and many more studies in this area may be highly worthwhile.

One limitation was that the vocabulary knowledge of the participants in this study was measured by the VKS which is based on students' self reports. However, students' self

reports may not represent their true knowledge of the target words. For example, the semantic and grammatical meaning of a word may be partially known but not enough to produce a synonym or translation. Moreover, because the scale is based on students' self reports the participants' confidence level may affect the results especially for categories I and II. For example, a participant might be over confident about seeing a word before and mark category II. As a result he/she may get 2 points instead of 1 point which can change the result of the whole scale. Therefore, it is suggested that other measurements be used to determine whether the same results are achieved.

Another limitation is that an introspective study of what caused the L3 learners to outperform the L2 learners was not carried out. This needs further research to address questions such as do L3 and L2 learners use different strategies in learning words? Or do they use the same strategies but the L3 learners use them more effectively? Perhaps the answers could be found by asking the participants to think aloud when completing the incidental and intentional tasks and exercises. This may involve individual interviews.

Another issue that could be considered in future studies is whether it is the intentional vocabulary learning method or the incidental vocabulary learning method that causes a significant difference between the L3 and L2 learners. Future studies could separate the two methods and compare the results. By doing this, it may be understood that it is the intentional or incidental method or perhaps a combination of both that result in such differences.

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APPENDIX

QUESTIONNAIRE (TRANSLATION)

Directions: Complete the following questionnaire. Please, note that in some of the questions the answers are provided for you and you just have to mark one of the choices, however, for some of the questions you may have to write a few words in the space provided. Thank you very much for your cooperation regarding completing this questionnaire.

1) How old are you?
a) 20-25   b) 25-30   c) 30-35   d) 35-40
Others, please specify --.

2) What is your sex?
a) Male b) Female

ARTICLES

3) What city are you from?

--.

4) What is your mother's mother tongue? Please specify.

--.

5) What is your father's mother tongue? Please specify.

--.

6) What languages are you fluent in? (Except English)
 a) Turkish (Azeri)   b) Persian   c) Both
 d) Others, please specify --.

7) What language or languages do you use at home with your family? (Except English)
a) Turkish (Azeri)   b) Persian   c) Both
d) Others, please specify --.

8) What language or languages do use outside home, at work or at school? (Except English)
a) Turkish (Azeri)   b) Persian   c) Both
d) Others, please specify --.

9) For writing materials outside school, e.g., letters, notes and others what language or languages do you use? (Except English)
a) Turkish (Azeri)   b) Persian   c) Both
d) Others, please specify --.

10) For reading materials outside school, e.g., newspapers, poems and others what language or languages do you use? (Except English)

a) Turkish (Azeri)   b) Persian   c) Both

d) Others, please specify --.

11) What language is your first language?

a) Turkish (Azeri)   b) Persian

c) Others, please specify --.

How well do you speak this language? (Please circle one)

Very little   little   moderately   very well   fluently

How well do you understand this language?

Very little   little   moderately   very well   fluently

How well can you read this language?

Very little   little   moderately   very well   fluently

How well can you write this language?

Very little   little   moderately   very well   fluently

12) Except English, what is your second language?

a) Turkish (Azeri)   b) Persian

c) Others, please specify --.

How well do you speak this language? (Please circle one)

Very little   little   moderately   very well   fluently

How well do you understand this language?

Very little   little   moderately   very well   fluently

How well can you read this language?

Very little   little   moderately   very well   fluently

How well can you write this language?

Very little   little   moderately   very well   fluently

13) Please, specify your parents' occupations?

Mother -------------------------------------Father -------------------------------------

14) What level of education has your mother achieved?

a) No formal education b) Under high school diploma   c)   High   school diploma

d) Bachelor degree   e) Master degree   f) PhD

Others, please specify --.

15) What level of education has your father achieved?

a) No formal education b) Under high school diploma   c)   High   school diploma

d) Bachelor degree   e) Master degree   f) PhD

Others, please specify--.

16) What is your occupation?

Please, specify --.

VOCABULARY KNOWLEDGE SCALE

Words	i) I don't remember having seen this word before.	ii) I have seen this word before but I don't know what it means.	iii) I have seen this word before and I <u>think</u> it means ----------. Write a synonym and a translation.	iv) I <u>know</u> this word. It means -------. Write a synonym and a translation.	v) I can use this word in a sentence: _____. (Write a sentence). (If you do this section please also do section iv).