

Visual Intelligence and Lexical Enhancement Tasks: Their Impacts on EFL Learners' Receptive and Productive Vocabulary

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The advent of multiple intelligences theory has highlighted the need for more correspondence between instructional tasks and L2 learners' multiple intelligences. One application of this theory, albeit still under-researched, is the possible use of visual intelligence to improve L2 learners' lexical acquisition. The objectives of this study were dual: (a) to investigate the relationship between EFL learners' visual intelligence and their vocabulary reception and production, and (b) to determine the relationship between two visually oriented vocabulary presentation tasks (bilingual glosses and bilingual glosses accompanied by pictures) and EFL learners' vocabulary reception and production. To this end, the visual intelligence section of the Multiple Intelligences Developmental Assessment Scales (MIDAS), a multiple intelligences test, and a test measuring receptive and productive vocabulary acquisition were administered to 91 low-proficiency EFL learners. The results revealed that there was no significant correlation between learners' visual intelligence and their vocabulary reception and production. As to vocabulary enhancement tasks, it was found that the two tasks did not differ in enhancing learners' vocabulary production; however, learners favored the bilingual glosses plus pictures for more gains in receptive vocabulary knowledge. These findings imply that, as a teachable

construct, learners' visual intelligence should be activated through instructional consciousness-raising procedures in order to help them draw on it to enhance their vocabulary acquisition. They also imply that lexical input enhancement through marginal glosses plus pictures can be more facilitative in improving vocabulary reception than vocabulary production as the former entails less demanding cognitive and memory operations.

Key Words: multiple intelligences, visual intelligence, lexical enhancement, modes of vocabulary presentation

INTRODUCTION

Multiple Intelligences and Language Education

As a reaction to the monolithic theory of intelligence, which had been in vogue in psychology and education for a number of decades, in 1983 Gardner created the theory of multiple intelligences. Gardner proposed a pluralistic view of the mind and recognized different facets of cognition. Gardner defined intelligences as the ability to solve problems or to fashion products in one or more cultural settings. He admitted that people have different cognitive strengths and different cognitive styles. Gardner's theory of multiple intelligences came from cognitive sciences (Gardner & Hatch, 1989). Viewing intelligence as a multi-dimensional phenomenon, Gardner postulated that individuals' intelligence is a composite of seven intelligence types: verbal-linguistic, mathematical-logical, visual-spatial, bodily-kinesthetic, musical-rhythmic, interpersonal, and intrapersonal. In 1997 and 1999, he enlarged the list by adding naturalistic intelligence and existential intelligence, respectively.

MI theory has a great contribution to education. It suggests that teachers should expand their strategies beyond the linguistic and logical intelligences and use different strategies in the classroom. According to MI theory, teaching strategies or techniques do not work best for all students at all times.

All learners are different in their intelligences; therefore, one strategy may be more successful with one group of students but less with the others. Educators can recognize the learners with different learning styles, learning potentials, and learning strategies (Lin, 2000). Learners learn differently and at different paces because of their biological and psychological differences (Reiff, 1992).

Recent theories of intelligence have focused on the individual differences. Gardner (1983) and Sternberg (1986) argue that individuals have distinct abilities. MI theory suggests a new way of thinking about intelligence. Learners in our classrooms are multifaceted and have many abilities. We as teachers need to give learners the skills and the opportunity to use their abilities so that they can enhance their learning. For example, teachers who use rhythms and chants find that musical learners respond to this strategy while nonmusical learners show no reaction, and that the use of pictures and images in teaching will attract spatial learners but have a different effect on physical learners.

There are several ways which may help MI teaching in our classroom (Lin, 2000):

1. Find out our own teaching styles through a multiple intelligence inventory.
2. Understand the students' intellectual profiles through students' inventory.
3. Consider specific teaching approaches and methods for particular intelligences or combinations of them.
4. Plan a variety of activities from different resources (like the internet) for specific lessons with multiple intelligence theory in mind (e.g. focus on diversity and transfer learning to life beyond the classroom).
5. Provide students with different learning strategies.
6. Emphasize the multiple forms of assessment rather than traditional standardized testing.

It seems that, although second language teaching focuses on individual differences in learning, there is not much study examining MI implications in

the field of second language learning and teaching. Christison (1996) states that the theory of MI provides ESL/EFL teachers with a new way of using their teaching strategies by considering human differences. She believes that in applying MI theory to TESL/TEFL, it is important to categorize the activities in the class and fit them into the MI taxonomy. She made a list for her own teaching. For example two categories of her list are: note-taking, listening to lectures, reading books, story-telling, and debates for linguistic intelligence category; and pair work or peer teaching, group brain storming, group problem-solving and project are considered for interpersonal intelligences category.

The theory of MI was embraced in the field of education in general and attempts have been made to draw on Gardner's theory to develop a model to assess individuals' multiple intelligences, to incorporate it in syllabus design and materials development, and to use it to inform L2 instruction in particular. Nevertheless, 'ELT scholars gave only scant attention' to the relationship between intelligence and second language learning, especially in formal classroom settings (Mercer, 2001), in both theoretical and practical terms in the 1880s and 1990s. While learners' affective and cognitive factors such as motivation, anxiety, and learning strategies have been featured in handbooks and reference books on second language acquisition and applied linguistics (Ellis, 1994; Gass & Selinker, 2008; Kaplan, 2002; Ritchie & Bhatia, 1996; Schmitt, 2002; Spolsky & Hult, 2008; VanPatten & Williams, 2007; Wei & Cook, 2009), the allocation of no section or no single sentence to the theory therein bears testimony to the poverty of theoretical attention over the past two decades. In the same vein, a cursory reference to the research papers published in ELT journals (e.g. *Applied Linguistics*, *Modern Language Journal*, *TESOL Quarterly*, *Language Learning*, and *Foreign Language Annals*) manifests the fact that the research on the application of theory to L2 teaching is thin on the ground. The reason for this little attention is twofold. First, despite the increasing role of information processing and cognitive models of second language acquisition in the past two decades (Harrington, 2002; McLaughlin & Heredia, 1996; Mitchell & Myles, 1998),

the focus of research has been directed toward learner factors other than intelligence, such as language learning strategies and motivation. Second, the relationship of intelligence to L2 learning met disfavor in the course of time because the concept of intelligence prior to emergence of Gardner's theory was too general and holistic to account for any aspect of L2 Learning.

Multiple Intelligences and L2 Vocabulary Instruction

In recent years, the concept of multiple intelligences has started to inform lesson planning and instruction in different domains of education, including different fields of ELT, ranging from ESP to curricula for young learners. Palmberg (2009) has discussed the integration of multiple intelligences into foreign language lessons and catering for the various intelligence types. In a paper on the benefits of multiple intelligences for young learners, Howell (2004) discusses the features and learning style preferences of different young learners. For example, he suggests, it may be difficult to have body-kinesthetic learners do tasks which require sitting still. In a workshop proposal, Sung (2004) has presented instructional strategies to enhance learning and teaching on the basis of MI theory. There are also papers particularly addressing topics specific to ELT, such as multiple intelligences and ESP, the application of multiple intelligences to English language teaching (Po-Ying, 2009), using multiple intelligences in EFL coursebooks (Palmberg, 2009), the use of various techniques based on multiple intelligences such as plays, cooperation, storybooks, and games (Bas, 2008), and the relationship between multiple intelligences and language learning strategies (Akbari & Hosseini, 2008). The most significant contribution from an instructional perspective comes from Berman (1998), who has offered a plethora of activities, stories, and puzzles as a multiple intelligence road to an ELT classroom.

Notwithstanding its significance in ELT, MI has not established itself in the teaching and learning of vocabulary. An investigation of books on second language vocabulary acquisition (Albrechtsen, Haastrup, & Henriksen, 2008; Coady & Huckin, 1997; Daller, Milton, & Treffers-Daller, 2007; Harrington,

2002; Nation, 2001a) suggests that the factor of multiple intelligences is not drawn on to explore lexical development. This lack of theoretical reference to multiple intelligences, in turn, made the relationship between lexical development and multiple intelligences an under-researched topic and deprived materials developers and ELT teachers of an informed use of different components of multiple intelligences in EFL vocabulary teaching. According to Gardner (personal communication, 2007), the impact of multiple intelligences on L2 vocabulary learning has not been studied. Among multiple intelligences, visual intelligence stands out as far as the visual enhancement of the lexical input is concerned. As students with high visual intelligence are able to learn best from visuals, they are expected to excel others in vocabulary items presented through such visuals as pictures and vocabulary maps.

Vocabulary Learning and Vocabulary Instruction Mode

A second consideration in vocabulary acquisition is the impact of mode of vocabulary presentation on its acquisition. Different modes, affected by different models of the nature of vocabulary and vocabulary acquisition and use, are favored (Coady, 1997; Hulstijn, 1997; Nation & Newton, 1997; Paribakht & Wesche, 1997; Zimmerman, 1997). One mode, as Read (2000) listed, is the use of mnemonic techniques, in particular the keyword technique, which involves instructing learners to form mental images which “link the meaning of an L2 word with an L1 word which has a similar sound (Paivio & Desrochers, 1981). The second mode is to present the list of unrelated words or that of related words, which includes words strongly associated with each other in terms of meaning. As research findings show, unrelated words are easier to learn (Higa, 1963; Tinkham, 1993). The third mode is to have L2 learners repeat the new words (Celce-Murcia & Rosenweig, 1979) and say them to themselves (Ellis & Beaton, 1993). The fourth mode is to teach learners how to infer word meanings from context, which can be made through various inferencing or guessing strategies

(Bruton & Samuda, 1981; Chandrasegaran, 1980; Clarke & Nation, 1980). The fifth one is using cards for vocabulary items, writing the L2 word on the one side and the first language translation on the other. Although using cards, due to its reliance on decontextualized learning, is an unfashionable technique among CLT teachers, Nation (2001b) found it to be very effective. The sixth technique is presenting a list of words in the L2 along with their L1 equivalents. The seventh one is the use of a tree diagram or lexical map to present the new words to L2 learners. Brainstorming constitutes the eighth technique for teaching vocabulary. The last one is to use pictures to make a direct association between the word and its external, concrete manifestation.

Two of the modes falling within explicit instruction are providing the L1 equivalence of each L2 word and presenting L2 words through pictures. The former mode is common practice in many EFL contexts on two grounds. First, the use of a bilingual dictionary and memorization of a decontextualized list is encouraged in an EFL context. Further, a bilingual list is embedded into the pre-reading section of lessons to help readers better cope with the lexical difficulty of text processing. Second, due to the emphasis which curriculum policy makers put on translation in countries where English is a foreign language, rather than the language of certain parts of the linguistic community, and the transfer of knowledge is accomplished through L1, knowing the meaning of a word in L1 is an advantage. As to the latter, i.e. the visual mode of presenting vocabulary items, it is frequently utilized at low-proficiency levels for two reasons. First, low-proficiency students have trouble understanding word definitions in L2. Second, such visuals as pictures provide a facile mode for the presentation of especially concrete words. As a result, in addition to the learner factor of visual intelligence, the mode of presentation as an instructional factor can contribute to L2 vocabulary acquisition.

Depth of Vocabulary Acquisition and Its Assessment

The last consideration is the depth of vocabulary acquisition. Incorporating

several components into a single framework, Nation (1990) divided components of word knowledge into two types: receptive and productive. Receptive knowledge includes components like the pattern in which the word occurs, the meaning of the word, and the types of words expected before and after the word. Productive knowledge, in Nation's framework, encompasses components such as the pronunciation of the word, the patterns in which the word is used, and the word which should be used to express a concept. When it comes to the assessment of the impact of vocabulary presentation mode, a proper assessment task should be used to address the impact of the modes on the development of productive and receptive knowledge. It follows that different types of assessment tasks are suitable for the two types of knowledge. Otherwise, the amount of knowledge may be underestimated or overestimated. Assessment tasks such as matching and multiple-choice items are closely associated with the assessment of receptive vocabulary knowledge, while fill-in-the-blank tasks and providing synonyms can elicit information about productive knowledge of vocabulary.

Purpose of the Study

Against this theoretical and empirically based backdrop, this research focused on a twofold purpose. The first purpose of the study was to examine the relationship between visual intelligence and the acquisition of the words presented by the two explicit modes (translation vs. translation accompanying a picture). Therefore, the study focused on determining the performance of high and low visual intelligent learners on vocabulary tests which measured vocabulary gains related to the two modes of teaching vocabulary. The second purpose of the study was to investigate how the two explicit modes of vocabulary presentation mentioned above, i.e. the use of pictures as a kind of visual effect and the provision of L1 equivalences along with pictures, enhance receptive and productive vocabulary knowledge.

To this end, the researchers posed the following questions:

1. Is there any significant relationship between EFL learners' visual intelligence and their receptive and productive vocabulary knowledge?
2. Is there any significant difference between vocabulary presentation modes (translation vs. translation accompanying a picture) in relation to EFL learners' receptive and productive vocabulary knowledge?

METHOD

Participants

This study was conducted with 91 low-proficiency participants studying English as a foreign language at a language center. Out of them, 52 were female and 39 were male. The ages of participants ranged from 15 to 30. Their course level was elementary, a level following a 3-semester basic level and preceding 12 semesters of pre-intermediate, intermediate, upper-intermediate, and advanced instruction. In each semester, learners were exposed to 40 hours of instruction. This indicates that they had already received 180 hours of instruction in English. In view of the amount of instruction and their well-specified level, the participants in this study could best be designated low-proficient learners. To ensure the homogeneity of the participants in terms of overall language proficiency, a proper version of the Nelson Test (Fowler & Coe, 1976) was administered. The participants made up one group, all receiving the same type of instruction for vocabulary acquisition during the 40-hour semester. However, they were taught some of the words by the use of translation and some others through translation accompanying pictures techniques.

Instruments

To address the research questions, three instruments, as described below, were employed:

Proficiency Test

A 50-item Nelson Test (Fowler & Coe, 1976) was given to the participants for the purpose of ensuring their homogeneity vis-à-vis their language proficiency at the beginning of the study. The proficiency test was composed of a cloze section as well as vocabulary, grammar, and sound test sections. After considering different proficiency tests (e.g. TOEFL, IELTS, the Michigan test, PET), the level of their locally produced course book, and prior research experiences with learners at that level, the Nelson Test was judged to be comparatively the most appropriate.

Vocabulary Tests

At the end of treatment sessions, a researcher-made multiple-choice test of vocabulary reception (20 items) and fill-in-the-blank test of vocabulary production (21 items) were administered to assess the participants' vocabulary achievement in terms of the vocabulary items taught during the treatment phase and to examine how well translation and pictorial modes of vocabulary presentation helped high and low visual intelligent learners learn new vocabulary items. The results of KR21 showed the reliability indexes of .74 and .71 for the multiple-choice test of vocabulary recognition and the fill-in-the-blank test of vocabulary recall, respectively.

Visual Intelligence Test

The MIDAS scales were designed by Shearer (1996) to measure MI (Shearer, 1991). The MIDAS scales describe the intellectual growth and achievement potential for each of the Gardner's domains (Shearer, 1996). In short, the MIDAS test provides an effective method of getting a self-descriptive profile of one's multiple intelligences. There are four general forms of the MIDAS assessment for different ages. As the subjects of this study were elementary students, the translated form of adult version of the MIDAS test was used.

Generally, there is no time limit for completing the questionnaire because it is not a test. Typically 35-45 minutes are adequate for self-completion of 119-item adult version (Shearer, 1991, 1996). The questionnaire asks about the activities of everyday life that need cognitive ability and judgment. Each item uses a six-point Likert scale which permits a range of responses, i.e. "All the Time" or "Excellent" (5) to "Never" or "Very Little" (0). Respondents are not forced to provide generalized responses or answers beyond their level of actual knowledge because a zero category is included for every item when the respondent does not know or the item does not apply. The responses are not calculated for the scale scores. Percentage scores for each scale are calculated from the total number of responses (Shearer, 1991).

Different studies of its reliability and validity (Shearer, 1991) have indicated that the MIDAS scales can provide a reasonable estimate of one's MI strengths and limitations that relate to external rating.

To assess participant's visual intelligence, the visual intelligence section of the MIDAS was administered. It included 15 items with six possible answers for each item, ranging from 0 to 5. A translation of the section was prepared and administered on two grounds. First, the translated version did not carry problems akin to understanding a questionnaire in a foreign language, especially for lower-level participants. The second impetus arose from the reports on the higher reliability of questionnaires when translated into the respondents' mother tongue.

Data Collection Procedures

The data were collected by the researchers in the course of three months. The following procedures were carried out to collect the relevant data:

First, the Nelson Test was administered to assess the homogeneity of the participants. They were given forty-five minutes to answer the questions. Based on the test results, 91 learners whose scores fell within one standard deviation below and above the mean ($M=21.56$, $SD=6.35$) were selected as the participants in the study. The application of KR21 showed that the

reliability of the test was .71.

Second, for the purpose of teaching vocabulary to the participants, they were taught by the use of translation and translation accompanying pictures techniques. One of the researchers, who was a teacher at the language center, instructed the classes for a 20-session term. Each session lasted for one hour and forty-five minutes. As it was a general English course, part of each session was allocated to vocabulary instruction; the rest of the session was spent on reading, listening, speaking, and grammar. All of the words were part of the vocabulary section of the learners' course book. To teach the new words, the language center instructional procedure was followed: The teacher read them and the participants' attention was directed to the translation of the words as well as to the pictures of those new words which were also presented in a pictorial mode; therefore, the participants were encouraged to look at the pictures to enhance their understanding of the words.

Third, the researchers made a multiple-choice vocabulary reception test (35 items) and a fill-in-the-blank vocabulary production test (39 items) based on the words that had been taught during the term. As a pilot study, the two tests were administered to a group of students at the same proficiency level as the participants. The data obtained through the pilot study were subjected to the process of item analysis. Too easy items (with an IF above .63) and too difficult items (with an IF below .37) were discarded. As a result, 15 items of the reception test and 18 items of the production test with facility values falling out of the range 0.37-0.63 were considered too easy or too difficult and were removed. The rest of the items _ 20 multiple-choice reception items and 21 fill-in-the-blank production items _ were considered as a main criterion for the assessment of participants' receptive and productive vocabulary.

Finally, the visual intelligence section of the MIDAS was administered to determine how much visual intelligence the participants had. The participants were given a translated form of the MIDAS which was adopted from a previous study (Zarrati, 2004). The participants were asked to mark the choices in the answer sheet according to their interests and visual intelligence.

Data Analysis

After collecting all the questionnaires and tests, the data were categorized and analyzed. The aim was to determine whether the students' visual intelligence was related to their vocabulary reception and production and to investigate the relationship between vocabulary presentation modes (translation vs. translation accompanying a picture) and learners' performance on the vocabulary reception and production tests.

The following are the main statistical methods which were adopted to analyze the data:

1. Descriptive statistics to estimate the mean and the standard deviation of the MIDAS, vocabulary reception and production tests, and the Nelson test scores for selecting the homogeneous students in terms of language proficiency. The points for visual intelligence were added and a percentage was calculated. The percentages were a measure to divide the participants into high and low visual intelligent groups. Scores for the Nelson test were calculated according to the number of correct answers.
2. A correlation coefficient was calculated between visual intelligence and vocabulary reception and production scores.
3. A *t*-test was applied to determine whether there was any significant difference between the two modes of vocabulary presentation (translation or translation accompanying a picture) in terms of vocabulary gains for reception and production.

RESULTS AND DISCUSSION

Several statistical analyses were conducted to answer the research questions. The results of data analysis are presented below.

Visual Intelligence and Vocabulary Knowledge

The first research question addressed the relationship between Iranian EFL

learners' visual intelligence and their vocabulary reception and production. To this end, first, the descriptive statistics for visual intelligence and vocabulary reception and production tests were obtained. The participant's mean scores for visual intelligence, receptive vocabulary, and productive vocabulary were 3.13, 12.01, and 9.36, respectively. The findings are shown in Table 1.

TABLE 1
Scores on the Visual Intelligence Test
and Vocabulary Reception and Production Tests

	N	Mean	Std. Deviation
Visual intelligence	91	3.13	0.543
Reception	91	12.01	4.032
Production	91	9.36	3.974

In order to examine the significance of the relationship between visual intelligence and vocabulary reception and production, several correlational analyses were carried out between the scores. At the beginning, the correlation coefficient of the visual intelligence and overall vocabulary score was computed. As manifested in Table 2, the results showed a correlational index of .04, which is not significant at $p < .05$. Therefore, visual intelligence does not have any meaningful relationship with the overall vocabulary knowledge.

TABLE 2
Correlation Between Visual Intelligence and Overall
Vocabulary Knowledge

		Overall vocabulary
Visual intelligence	Pearson Correlation	.040
	Sig. (2-tailed)	
	N	91

Then, two other correlational analyses were conducted in order to determine the relationship between (1) visual intelligence and vocabulary reception, and (2) visual intelligence and vocabulary recall. The results of

these analyses are presented in Table 3.

TABLE 3
Correlation between Visual Intelligence and Vocabulary Reception and Production

		Vocabulary reception	Vocabulary production
Visual intelligence	Pearson		
	Correlation	0.48	.027
	Sig. (2-tailed)		
	N	91	91

As the results of these analyses show, the relationship between visual intelligence and vocabulary reception was not meaningful at $p < .05$. Therefore, there is not any significant relationship between EFL learners' visual intelligence and their vocabulary reception and production.

These results indicate that visual intelligence, against theoretically oriented expectations, does not have a strong correlation with vocabulary reception and production gains. It is speculated that some interrelated factors may play a role in lack of meaningful correlation between the two variables. First, it is essential to keep in mind that the participants in this study were at the elementary proficiency level. As students at this level heavily draw on low-level cognitive abilities and are constrained by insufficient linguistic knowledge, they may fall short of going beyond the linguistic demands of understanding the new words in order to get their visual intelligence to facilitate the process. Another reason might be that the mere existence of high intelligence in some EFL learners does not guarantee their active use of it for the vocabulary acquisition task. Still another reason is that visual intelligence is something general by nature, rather than specific to the capacity for the processing of symbols of linguistic nature. The 15 items in the MIDAS aimed at the assessment of visual intelligence reflect various composites, including such factors as finding one's way around new buildings or city streets, drawing or painting pictures, creativity and liking to invent or experiment with unique designs, and having a good sense of direction. As the list of factors reveals, visual intelligence is too general a concept to directly facilitate the accomplishment of the specific task of using pictures to acquire

L2 words. It follows that like many other learner variables such as motivation _ which was first introduced as a monolithic and general concept but narrowed down and reconceptualized later to specifically account for language learning motivation, intrinsic/extrinsic motivation, and task motivation (Dörnyei, 2005, 2009) _ visual intelligence should be reanalyzed to find those elements in its construct which bear on vocabulary acquisition. A corollary of this reanalysis would be the definition of the construct of vocabulary-specific visual intelligence at the theoretical definition stage and the development of a measure, e.g. a questionnaire, to assess vocabulary-specific visual intelligence at the operationalization stage. Provided that these two steps are taken, a closer, more insightful relationship between vocabulary gains and visual intelligence use might be found.

Vocabulary Presentation Modes and Vocabulary Reception and Production

The second question examined whether there was a significant difference between the two vocabulary presentation modes (translation vs. translation accompanying picture) in relation to EFL learners' vocabulary reception and production. In order to determine the difference between the two modes in vocabulary reception and production, the paired-samples *t*-test was run. The calculation of the *t*-test showed that there was a significant difference between the translation mode and the translation-accompanying-picture mode in vocabulary reception gains. However, the difference between the two modes in vocabulary production fell short of being significant. The results are presented in Tables 4 and 5.

TABLE 4
T-test for the Difference between the Translation Mode and the Translation-
accompanying-picture Mode in Vocabulary Reception

	Paired Differences				T	df	Sig. (2-tailed)	
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Low				High
Multiple Choice translation - Multiple Choice picture and translation	4.16	2.442	.256	3.66	4.67	16.272*	90	.000

* $p < .01$.

TABLE 5
T-test for the Difference between the Translation Mode and the Translation-
accompanying-picture Mode in Vocabulary Production

	Paired Differences				T	df	Sig. (2-tailed)	
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower				Upper
Multiple Choice translation - Multiple Choice picture and translation	-.11	1.946	.204	-.52	.30	-.539	90	.591

DISCUSSION

The results of the statistical analysis showed that EFL learners' visual intelligence does not have any significant relationship with their receptive and productive vocabulary. This implies that the acquisition of vocabulary

through visually oriented techniques of reading L1 meanings of L2 words and pictures accompanying words does not benefit from visual intelligence despite the fact that this intelligence has the potential to enhance visually oriented acquisition of new words. This disconnection can be accounted for by suggesting two possible reasons. The first reason is related to the gap between potentiality and its realization in many cognitive variables of learners such as multiple intelligences. These variables are teachable, needing instruction to be fully utilized. This rationale applies to visual intelligence. As Lazear (1999) points out, the application of multiple intelligences requires that they be taught through four stages: (a) awaken the intelligence (teachers can activate a particular intelligence through exercises and activities by using five senses or intuition); (b) amplify the intelligence (teachers focus on improving and strengthening the intelligence by using and practicing); (c) teach for/with intelligence (teachers structure the lessons for MI, so that they emphasize and use different intelligences; and (d) transfer of the intelligences (at this stage, teachers concerned with going beyond the classroom, with the integration of intelligence into daily life such as solving problems and challenges in the real world). All of these stages should be present in an ESL/EFL lesson to help L2 learners draw on their visual intelligence to enhance their vocabulary acquisition. It follows that those participants of this study who were rated as EFL learners with higher visual intelligence failed to apply this intelligence to take more advantage of visually oriented vocabulary instruction techniques due to the fact that there was no program in their English curriculum to teach them the use of visual intelligence through the four stages above.

The second reason for the nonsignificant relationship between visual intelligence and vocabulary reception and recall is based on the nature of visual intelligence as represented in the MIDAS. The items in the MIDAS measuring the degree of visual intelligence are related to such visual abilities as “building things out of blocks or boxes; play with jacks, marbles or jump rope,” “mechanical drawing, hair styling, woodworking, art projects, auto body, or mechanics,” “designing things such as arranging or decorating

rooms, craft projects, building furniture or machines,” “finding one’s way around new buildings.” As the examples show, the items are too broad to be specific to the acquisition of linguistic competence in general and vocabulary knowledge in particular. As a result, the non-linguistic nature of most constituents of visual intelligence as represented in the MIDAS, coupled with no active use of visual intelligence for vocabulary acquisition, may explain the insignificant correlation between visual intelligence and vocabulary reception and recall as found in this study.

Another result of the current study was that there was a significant difference between the translation mode and the translation-accompanying-picture mode in vocabulary recognition gains, but not in vocabulary recall gains. The differential effects of the modes on reception and production gains may be attributed to a number of reasons. In the first place, both modes of vocabulary presentation employed in this study were decontextualized, failing to provide any context to make great contribution to vocabulary acquisition, particularly to vocabulary production and remembering. Words taught in isolation, i.e. in a decontextualized fashion, are generally not remembered. In addition, as Nation (2001b) points out, there many aspects of word knowledge that are not helped by learning words in isolation. Context is such a strong influence that even encourages incidental vocabulary learning. In view of the significance of context, it can be speculated that the two decontextualized modes of vocabulary presentation gave rise to some vocabulary gains. However, there was a difference in their effects when it come to productive learning in that, as Nation (2001a) contended, according to “amount of knowledge” view of receptive and productive vocabulary knowledge and use, “productive learning is more difficult because it requires extra learning of new spoken or written output patterns” (p. 28). This particularly applies to Persian learners of English which uses a writing system and sound and sound combinations different from Persian. On the other hand, for receptive use, as Nation (2001a) argues, only a few distinctive features of the form of a word may be needed.

In addition, the “practice” view (Nation, 2001a) may be invoked to

explaining the differences between the two modes in production gains. According to the practice view, receptive vocabulary use generally gets more practice than productive vocabulary use in normal language conditions, and this may account for the comparatively larger receptive vocabulary size. This argument closely applies to learners' conditions of learning in this study, which were heavily loaded with a gear portion of teacher talk and little production practice and conversational interaction. As a result, learners were denied of sufficient opportunity to enhance their acquisition of new words for production through interaction and output. The latter, interaction, is of significance in that it facilitates language acquisition, and in this case vocabulary acquisition, through the mediation of negation, recast, and feedback (Gass & Mackey, 2006; Gass & Selinker, 2008). Along with interaction, output makes further contribution to vocabulary acquisition because, as it is true with language acquisition in general (Gass & Selinker, 2008; Swain, 1985, 1995, 2005), it provides learners with a venue, among other things, for testing hypotheses about the meanings of new words as well as automaticity in word production.

The foregoing two views provide arguments to cope with the differential effects of vocabulary presentation modes on word reception and word production. Compatible with the findings of this study, they highlight two main points. First, learning conditions, especially in terms of the availability of the forum for output and production, come to play a role in acquiring word knowledge and what that knowledge entails, i.e. being able to recognize the word in writing or being able to use it. Second, vocabulary instruction modes, though streamlining acquisition, fail to bring about the full-range effects, particularly when it comes to word production, provided they don't introduce the new words with their proper contextualization.

CONCLUSION AND IMPLICATIONS

The results of the study indicated that “visual intelligence,” one of the

eight components of MI, does not have a strong correlation with vocabulary reception and production. This finding has a number of implications for designing L2 teaching activities and developing L2 materials. One implication relates to the use of visuals to present the new words based on the premise that when words accompanied by pictures can be more effectively retained and produced. It should be, however, noted that the mere incorporation of pictures in ELT materials does not result in significant enhancement of vocabulary acquisition even by more visually intelligent learners in case the more fundamental variables such as learners' motivation for attending to the word-picture relationship and meaningful communicative activities getting learners beyond looking at word-picture association are not taken into account. Another implication is that visual intelligence does not act in a straightforward way, i.e. the more visually intelligent a learner is, the more benefit they will gain from the word-related pictures in ELT materials and vocabulary instruction activities. Still another implication is that contextualization may be more important than the use of visuals even for learners with a high degree of visual intelligence. It follows that lack of contextualization may stand in the way of even more visually intelligent people to activate their intelligence to aid them in increasing their receptive and productive word knowledge.

It seems that the learning process will function more effectively if learners' visual intelligence is activated by teachers in the classroom. Therefore, teachers should plan activities incorporate visual intelligence by using different visual aids in their classrooms, and students should be encouraged to use this specific intelligence to make the learning process more accessible.

Furthermore, as the researchers used the MIDAS, a self-report questionnaire, as a way of assessing the learners' visual intelligence, some of them may not have reported their true answers due to the fact that they wanted to impress their teacher or the researchers.

The second question advanced in this study was partially rejected because there was a significant difference between translation and translation-accompanying- pictures scores in vocabulary reception; however, there was

no significant difference between translations and translation-accompanying-pictures scores in vocabulary production.

Since the translation of the words was given in the learners' books, they did not pay enough attention to the pictures and the teachers might not have made them conscious of the use of pictures in vocabulary acquisition, particularly its benefit to high visual intelligence learners. This finding suggests that teachers should put more emphasis and focus on the pictures by showing them to draw their students' attention to pictures. Furthermore, it can be concluded that presenting words by pictures is not enough, and consciousness-raising should be done by teachers in the process of teaching new words.

It was already mentioned that the participants were studying at the elementary level, failing to perform well on the fill-in-the-blank tests by because producing words appropriate to the context requires more active memory and more demanding cognitive operations than recognizing words through receptive vocabulary knowledge. This implies that the acquisition of productive vocabulary knowledge necessitates more input enhancement along with more activation of visual intelligence.

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