

Second Language Vocabulary Research: 2010

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This is a review of second language vocabulary research. Articles published in leading international research journals in 2010 are the scope of this investigation. The present review comprises the following key themes: the role of phonological decoding in second language word-meaning inference, the development of word polysemy and word frequency use in second language speakers, cross-language priming of word meanings with visual exposure to first language translation equivalents, a case study focusing on an adult second language learner's vocabulary learning, the effects of integrated and isolated form-focused vocabulary instruction on second language vocabulary learning, the effect of metaphor awareness on learning English phrasal verbs, the effect of perceptual learning style on second language vocabulary learning, the effects of a vocabulary intervention program on language minority students' English vocabulary and writing outcomes, word recognition in Arabic as a foreign language, an academic formulas list, and lexical diversity in writing and speaking task performances.

The Role of Phonological Decoding in Second Language Word-Meaning Inference

A study by Hamada and Koda (2010) explored the role of phonological decoding in second language (L2) word-meaning inference.

After reviewing the relevant literature (i.e., the role of phonology in reading comprehension [pp. 514-515], mechanisms of word-meaning inference [pp. 515-516], and cross-linguistic transfer of reading subskills [pp. 516-519]), the researchers formulated the

following two research hypotheses (p. 519): (a) L2 learners of English with alphabetic L1 orthographic backgrounds are more efficient (i.e., faster and accurate) in phonological decoding of English than their proficiency-matched counterparts with logographic backgrounds; and (b) L2 phonological-decoding efficiency differentially relates to L2 word-meaning inference among ESL learners with alphabetic and logographic L1 backgrounds. Specifically, L2 phonological-decoding efficiency is correlated with L2 word-meaning inference success among alphabetic ESL learners, but its impact is far more limited among their logographic counterparts.

The above two hypotheses were “tested empirically by comparing phonological-decoding efficiency and its relation to word-meaning inference among proficiency matched L2 learners of English with alphabetic and logographic L1 backgrounds” (p. 519).

This study comprised two groups of college-level ESL learners with contrasting L1 orthographic backgrounds. One was a group of ESL learners with alphabetic L1 orthographic backgrounds. This group consisted of 15 native speakers of Korean and one native speaker of Turkish ($N = 16$). The other was a group of ESL learners with logographic L1 orthographic backgrounds. This group was composed of 13 native speakers of Chinese and four native speakers of Japanese ($N = 17$) (p. 520).

Next, let me describe tasks used in Hamada and Koda's (2010) study: (a) a naming task (p. 521) and (b) a meaning-inference task (pp. 521-523). First, in respect of the naming task, it was administered to measure phonological-decoding efficiency, defined as “the speed and accuracy of phonological information extraction from printed words” (p. 521). The stimuli used in this task were 20 English real words and 20 English pseudowords (p. 521).

The procedure employed in the naming task is explicated in the following description quoted from Hamada and Koda (2010, p. 521): In the naming task, the participants read aloud visually presented English real words and pseudowords as quickly and accurately as possible. This task was administered to each participant individually by a computer-programmed instrument. The stimuli were randomized and presented on the computer screen one at a time for a maximum of 2,500 ms. The lapse between the onset of the stimulus presentation and the participant's voice articulation within the 2,500 ms presentation time was recorded as the reaction time (RT). Any responses after the maximum duration were considered to be incorrect. Participants' responses were also tape-recorded for an analysis of response accuracy. Before beginning the naming task, to ensure that the procedure was clear, a practice session consisting of five pseudowords that were not included in the stimuli was administered to all of the participants.

Next, let me move on to the meaning-inference task. This task consisted of a reading session and a definition writing session. The purpose of the reading session was to provide an environment in which word-meaning inference could occur (p. 521). (For a

detailed description of the materials used in the reading session, see Hamada & Koda, 2010, p. 522.)

Regarding the definition writing session, it was administered to the participants immediately after the reading session with a view to measuring “individual word-meaning inference success” (p. 523). The participants inferred and wrote down the meanings of the target pseudowords in English (p. 523).

The results showed that alphabetic, as opposed to logographic, L1 background was associated with better decoding, that the groups (i.e., the alphabetic L1 group and the logographic L1 group) did not differ in meaning-inference performance, and that the relationship between decoding efficiency and meaning-inference was stronger in the alphabetic group (p. 513, pp. 523-525).

This article by Hamada and Koda (2010) provides “a psycholinguistic account of L2 word-meaning inference during reading, an account which focuses on the contribution of phonological-decoding efficiency in reading comprehension and word learning as well as on the cross-linguistic transfer of reading subskills” (p. 527). An attempt to investigate the effects of L1 orthographic backgrounds on L2 word-meaning inference is, in my view, a subject of deep interest to those involved in L2 vocabulary research. I think that this article by Hamada and Koda (2010) is a significant contribution to the advancement of this line of research (i.e., substantiating the effects of L1 orthographic backgrounds on L2 word-meaning inference), which will attract L2 vocabulary researchers' attention in the future.

The Development of Word Polysemy and Word Frequency Use in Second Language Speakers

An intriguing study by Crossley, Salsbury, and McNamara (2010) investigated and analyzed the development of word polysemy and word frequency use in second language (L2) spoken data.

The participants in their study were a group of L2 English learners enrolled in an intensive English program at a large American university. They were interviewed every 2 weeks (not including program and university breaks) over a 1-year period. These learners' proficiency levels were tested upon arrival to the program using internal assessments. All participants in the study were judged to be at the lowest proficiency level, Level 1, of a 6-level program. Learners' language growth was also assessed every other month through the institutional TOEFL. The first application of the TOEFL occurred at the end of the second month of observation. The mean score on the exam was 358.33 with a standard deviation of 49.79. The focus of their study is on six of the learners in the original cohort of 50 students. The other 44 learners were dropped from the analysis because of large

gaps in the elicitation data during the year or because they did not complete the year. The participants ranged in age from 18 to 29 years old (pp. 579-580).

Crossley, Salsbury, and McNamara (2010) were interested in examining the use of words with multiple senses. Additionally, they investigated whether L2 learners began to use more senses of words as a function of time spent learning English. To address these issues, the researchers conducted the following two studies with the aforementioned learners as participants: Analysis 1 (pp. 580-589) and Analysis 2 (pp. 589-599).

Analysis 1 is “a quantitative and computational examination of L2 learner data using polysemy values taken from the WordNet lexical dictionary as well as word frequency values taken from the CELEX corpus” (p. 579). In contrast, Analysis 2 is qualitative in nature, and was undertaken to strengthen the findings of the quantitative analysis (i.e., Analysis 1). The purpose of Analysis 2 is “to provide supporting and illustrative evidence for the quantitative analysis. Thus, the second analysis reports on the growth of word sense production over the course of the longitudinal study on a small selection of polysemous words using human word ratings” (p. 579).

In respect of Analysis 1, which examined the growth of WordNet polysemy values and CELEX word frequency values, the findings showed that, first, “for both indexes, significant growth was demonstrated from the 2nd to the 16th week of observation, after which values remained stable” (p. 573). Second, “growth in word polysemy values also correlated with changes in word frequency, supporting the notion that frequency and polysemy effects in word use are related” (p. 573).

As regards Analysis 2, it examined a small selection of highly polysemous words that were commonly produced in the L2 learner data found in Analysis 1. Specifically, to select the words used in Analysis 2, a word frequency count was conducted for each transcript from the first analysis. The transcripts were divided into two categories: the first trimester and the later trimesters. The researchers chose to divide the data between the first trimester and the following trimesters based on the results of Analysis 1, which demonstrated that polysemy and word frequency values leveled off after the first trimester.

Words (including their morphological variants) were selected if they were produced by all L2 learners in both categories and if they had a normalized frequency of over .002 as well as 10 or more senses according to WordNet. To be specific, the words used in Analysis 2 were the following: *know*, *name*, *place*, *play*, *think*, and *work* (p. 590).

Specifically, Analysis 2 compared frequencies for each word sense in the first trimester with those in the later trimesters. Differences in the number of word senses used across trimesters were found for all the six words (p. 573).

The researchers state that the results of Analysis 2 “support the argument that L2 learners use more word senses in the later trimesters than in the first trimester” (p. 596). Additionally, they also state that this finding supports their initial analysis and the notion

that “L2 learners begin to develop sense relations within words as time spent studying English increases” (p. 596).

In my judgment, this article by Crossley, Salsbury, and McNamara (2010) is a significant contribution to second language vocabulary research because it provided evidence for (a) the development of lexical proficiency in second language learners and (b) the growth of lexical networks. I think I can say with confidence that the article by Crossley, Salsbury, and McNamara (2010) is a valuable text for those interested in second language vocabulary research and those planning to tackle the task of substantiating the development of polysemy and frequency use in second language learners.

Cross-Language Priming of Word Meanings With Visual Exposure to First Language Translation Equivalents

A study by Yuan, Woltz, and Zheng (2010) pertains to cross-language priming of word meanings during second language (L2) sentence comprehension. Specifically, their study investigated the benefit to L2 sentence comprehension of word-meaning priming with brief visual exposure to first language (L1) translation equivalents (p. 446).

Their study comprised 30 English-speaking learners of Mandarin studying at the University of Utah.¹ All of them started learning Mandarin after age 18. They were awarded extra credit in their Mandarin class for participating in the study. The average age of the 30 participants was 23, with 17 males and 13 females (p. 457).

The aforementioned 30 participants were asked to evaluate the validity of aurally presented Mandarin sentences.

Specifically, the experimental stimuli were 48 Mandarin sentences that included 96 words taken from instructional materials that had been used for first-year Mandarin classes for several years. Each sentence contained 2 of the identified 96 words, and each word was used only once. Half of the 48 sentences were true statements and half were false statements. These sentences were all simple declarative sentences without subordinate clauses. The sentences were read by a native Mandarin speaker and recorded in digital sound files. The average recorded time of the sentences was 2.30 s. English translation equivalents for the 96 Mandarin words were used as primes that were presented visually while the participants listened to the Mandarin sentences (p. 457).

While half of both valid and invalid sentences were unprimed, the other half of both valid and invalid sentences were primed with a brief visual presentation of English translation equivalents. One third of the primed sentences had only an initial word in the sentence primed, one third had only a late word primed, and one third had both early and late words primed (p. 457).

Each prime word was preceded by a forward mask (a string of 12 Xs) for 50 ms.

The prime word was exposed for 100 ms. This was followed by a backward mask (a string of 12 Xs) for 50 ms (p. 458).

The data obtained in this study demonstrated that both response time and errors in the evaluation of the validity of Mandarin sentences were reduced as a function of brief visual priming (100 ms) with English translation equivalents (p. 462).

As for response time, the priming of early and late words in a sentence each reduced response time by an average of approximately 400 ms. When both early and late words were primed, the facilitation was just slightly greater than twice the single-word priming effect, or about 900 ms. Specifically, the means and standard deviations of response time were as follows: (a) unprimed, $M = 2,576$ ms ($SD = 1,471$ ms); (b) early word primed, $M = 2,135$ ms ($SD = 1,205$ ms); (c) late word primed, $M = 2,183$ ms ($SD = 1,454$ ms); and (d) both words primed, $M = 1,687$ ms ($SD = 925$ ms) (pp. 461-462). Yuan, Woltz, and Zheng (2010) state that “this² pattern suggests that L2 word meaning retrieval and integration, which can be slow and effortful in L2 learners, is substantially reduced with brief L1 visual primes. Furthermore, the pattern is consistent with the interpretation that this facilitation is based on automatic activation of shared semantic representations rather than strategic, effortful processing of L1-L2 word associations” (pp. 462-463).

In respect of response errors, the results showed that the effect of early versus late word primed conditions on response errors was statistically significant, $F(1, 24) = 6.00$, $p < .05$, partial $\eta^2 = .20$, with greater facilitation for early word primes. Additionally, the effect of unprimed versus early word primed conditions on response errors was statistically significant, $F(1, 24) = 6.32$, $p < .05$, partial $\eta^2 = .21$. Specifically, the means and standard deviations of response errors (percentage error) were as follows: (a) unprimed, $M = 21.7$ ($SD = 15.9$); (b) early word primed, $M = 11.7$ ($SD = 14.3$); (c) late word primed, $M = 22.0$ ($SD = 21.5$); and (d) both words primed, $M = 9.0$ ($SD = 18.0$) (pp. 460-461). As Yuan, Woltz, and Zheng (2010) lucidly put it, “priming³ was only effective in facilitating comprehension accuracy if the initial content word in a sentence was primed, and this was a relatively large effect (i.e., reducing error rates by approximately half). Moreover, early word priming reduced errors regardless of whether a later content word was primed” (p. 463).

A Case Study Focusing on an Adult Second Language Learner's Vocabulary Learning

Joe (2010) reported on a case study focusing on an adult second language learner's vocabulary learning.

The participant in this study, Zeki, was a married, 23-year-old student from Turkey who had lived in New Zealand for 14 months. At the time of this case study, he was

enrolled in his second 14-week English for Academic Purposes course at a New Zealand university and was aiming to embark on undergraduate courses in economics, politics, and history (p. 121).

The participant was placed into the highest-level class. A diagnostic measure of receptive vocabulary knowledge, the Vocabulary Levels Test (Nation, 1990), indicated that he knew about two-thirds of the second thousand most frequent words of English, about half of the third thousand, and about half of University Word List items (pp. 121-122).

After reviewing previous studies on quality of input (p. 118), quality of output (pp. 118-119), and frequency of occurrence (pp. 119-120), the researcher addressed the following main research question: Are words that are encountered frequently learned better, irrespective of the richness of context and the type of cognitive processing? Specifically, this question consists of the following three secondary questions (p. 120): (a) How many encounters with target words are needed to shift them from one state of vocabulary knowledge to another?; (b) Are words embedded in rich, clear contexts learned better?; and (c) Is⁴ evidence of greater depth of processing associated with greater vocabulary development?

This study is derived from a larger study investigating the quality and frequency of four second language learners' encounters with vocabulary as they studied in an academic English preparation course over 3 months (p. 121).

Because it is almost impossible to track all data sources and use of target words, a more realistic approach was taken. Specifically, the researcher targeted vocabulary use at the beginning, middle, and final weeks of the course (p. 121).

To assess learners' quality of cognitive engagement with and opportunities to encounter new vocabulary, four data gathering procedures were employed: collection of written texts from learners and teachers, non-participant classroom observations, semi-structured interviews about vocabulary learning practices, and structured pretest and posttest interviews (p. 121).

In respect of target words, a total of 20 partially known or unknown words were examined in this study. The words fell into three main categories: (a) 3 words used as part of a task sequence with guided teacher input such as dictoglosses or tasks involving reading comprehension and discussion; (b) 4 words used in tasks receiving less teacher intervention and requiring learners to take more responsibility such as essay writing, direct study for vocabulary tests or news logs; and (c) 13 words encountered incidentally in reading or listening (p. 122).

Drawing on the importance of using multiple sensitive vocabulary measures, Joe (2010) employed the following five measures. Three of them were designed to measure different aspects of word knowledge or use: (a) knowledge of a word's form and meaning, (b) knowledge of a word's associates, and (c) the ability to generate a sentence accurately

and appropriately using the target word. These three vocabulary knowledge and use measures were adapted from the Vocabulary Knowledge Scale (VKS), developed by Wesche and Paribakht (1996). A fourth measure was designed to assess both the level of generative processing evident in learner output and the extent to which word meanings were explicitly stated or could be inferred from oral and written contexts. The fifth measure, a word recognition task, was designed to tap partial knowledge of word meanings and associations that he was unable to express during the interview phase (pp. 122-125).

The main finding of this case study indicated that frequency of encounters contributed more to vocabulary learning than contextual richness did. Additionally, the data obtained in this study illustrated the highly incremental nature of second language vocabulary acquisition in a naturalistic context (p. 117, pp. 126-134).

The Effects of Integrated and Isolated Form-Focused Vocabulary Instruction on Second Language Vocabulary Learning

File and Adams (2010) conducted a study with a view to investigating the effects of integrated and isolated form-focused vocabulary instruction on second language vocabulary learning.

This study comprised 20 intermediate-level English as a second language learners from a university preparation course. Specifically, there were two classes (Class A and Class B). Class A ($N_A = 11$) was composed of 4 males and 7 females; their first languages were Korean ($n = 6$), Chinese ($n = 3$), Malaysian ($n = 1$), and Indonesian ($n = 1$). Class B ($N_B = 9$) consisted of 6 males and 3 females; their first languages were Korean ($n = 5$), Chinese ($n = 2$), and Thai ($n = 2$) (p. 227).

The participants in each class received two reading treatments in which they read an article and studied vocabulary from that article. In one of the treatments, the participants were taught the words in isolation prior to reading the article, and in the other treatment, vocabulary instruction was integrated with reading the article (p. 222).

Specifically, in the isolated treatment, all 12 target vocabulary items were taught before the participants read the text. Each word was presented individually on an overhead transparency and pronounced by one of the researchers. The researcher then orally defined the words. After the meaning was provided, an example sentence was shown to the participants on an overhead transparency, and the meaning of the word was explained in relation to the context of this example sentence. Two synonyms for each target word were also given. After all 12 target words were taught, the researcher started to read the text orally. The 12 target words were bolded in the text, but the researcher paid no further attention to them when they came up in the reading (p. 231).

Regarding the integrated treatment, all the target words were taught in the context of

an article. Instead of preteaching the words, the researcher started the oral reading of the text immediately after the warm-up. After reading a sentence that contained one of the 12 targeted words, the researcher returned to the target word (bolded in the article) and drew participants' attention to the form. After that, the researcher gave the meaning of the word orally. Then the researcher explained the meaning of the target word in relation to the context of the article. After providing a meaning, the researcher then gave two synonyms for the target word (pp. 231-232).

In this study, Paribakht and Wesche's (1997) Vocabulary Knowledge Scale (VKS) was adopted as an instrument to measure learning and retention gains for (a) words taught in isolated form-focused instruction, (b) words taught in integrated form-focused instruction, and (c) words acquired incidentally (p. 222, p. 233). As File and Adams (2010) state, the VKS “allows the researchers to distinguish different levels of knowledge about a particular word. The VKS requires learners to self-report their knowledge of a target word on a five-point scale, ranging from no knowledge of the word to the ability to use the word productively” (p. 233).

The obtained data demonstrated that, first, both isolated and integrated form-focused methods were more effective in terms of vocabulary gains than incidental exposure. Second, no statistically significant differences were observed between the isolated and integrated methods. Third, although the difference between the two form-focused methods did not reach significance, there was a trend for the isolated method to lead to higher levels of learning than the integrated method (pp. 235-238).

The Effect of Metaphor Awareness on Learning English Phrasal Verbs

Yasuda (2010) investigated the effect of metaphor awareness on learning English phrasal verbs. Specifically, she reported on a study that sought to examine whether enhancing the awareness about metaphors embedded in phrasal verb particles would facilitate the acquisition of phrasal verbs by Japanese learners of English as a foreign language.

The participants in this study were 115 Japanese university students enrolled in the English Language Program at the School of Liberal Arts in a private university in Tokyo, Japan. They were all first-year students at the time of the study, and their average Test of English as a Foreign Language score was 450 (p. 257).

As for learning materials, the following 21 phrasal verbs were used (p. 257): *break down, burst into, call off, calm down, dry up, enter into, figure out, get off, keep off, knock down, leave out, make out, open up, pay off, rule out, run into, show up, take off, turn down, turn into, and use up*.

The participants were divided into two groups: a control group ($n = 56$) and an

experimental group ($n = 59$) (p. 258).

The participants in the control group were presented with the phrasal verbs based on a traditional method. The instructor told them what each of the phrasal verbs meant in Japanese by simply translating it. The students were then instructed to memorize the phrasal verbs using a checklist. In the checklist, the 21 phrasal verbs were listed alphabetically together with their Japanese translations (p. 258).

The students in the experimental group were presented with the 21 phrasal verbs through a cognitive linguistic method. Specifically, the meanings of these 21 phrasal verbs were explained based on the orientational metaphors embedded in the adverbial particles. The instructor emphasized the manner in which the orientational metaphor of the adverbial particle contributed to the meaning of the whole string rather than simply translating it. The students were then instructed to memorize the meanings of these phrasal verbs with reference to a checklist. In the checklist, the phrasal verbs were categorized under the headings of their underlying orientational metaphors, together with their Japanese translations. The students were instructed to pay attention to these orientational metaphors in learning the phrasal verbs (p. 258).

After the treatment, the participants in both groups were asked to fill in the missing adverbial particles of 30 phrasal verbs in the context of a sentence (p. 258).

Specifically, the 30 items consisted of exposed and unexposed phrasal verbs. More specifically, the first half of the sentences (1-15) included the phrasal verbs to which the students had been exposed in the treatment; the second half of the sentences (16-30) included the phrasal verbs to which the students had not been exposed in the treatment (pp. 258-259).

The reason unexposed phrasal verbs were included was to “observe whether, and to what degree, the students could generalize metaphorical thought when they encountered unfamiliar phrasal verbs” (p. 259).

The overall results suggested that “the students in the experimental group performed significantly better than those in the control group, implying that when the target idioms are not stored as a unit in learners' mental lexicon, learners who are aware of conceptual metaphors may rely on metaphorical thought to produce an appropriate adverbial particle” (p. 250).

The Effect of Perceptual Learning Style on Second Language Vocabulary Learning

Tight (2010) investigated the effect of perceptual learning style on second language vocabulary learning.

This study comprised 128 third-semester L1 English undergraduate students of

Spanish at a large Midwestern university, the United States of America (p. 800).

After reviewing previous studies on learning style as individual difference (pp. 794-795), learning styles models (pp. 795-796), perceptual learning style (pp. 796-797), and style-matching research (pp. 797-799), Tight (2010) addressed the following research questions (p. 800): (a) What are the perceptual learning style preferences of third-semester learners of L2 Spanish at a large Midwestern university?; (b) Are there differences in L2 vocabulary gains, on immediate or delayed posttests, among perceptual learning style preference groups?; (c) Are there differences in L2 vocabulary gains, on immediate or delayed posttests, among all learners when instruction is through a single, more preferred learning style, a single, less preferred learning style, mixed-modality instruction, or when there is no instruction?; (d) Are there differences in L2 vocabulary retention, from immediate to delayed posttests, among perceptual learning style preference groups?; and (e) Are⁵ there differences in L2 vocabulary retention, from immediate to delayed posttests, among all learners when instruction is through a single, more preferred learning style, a single, less preferred learning style, or mixed-modality instruction?

In respect of the participants' learning style preferences, they were assessed using Cohen, Oxford, and Chi's (2006) Learning Style Survey (LSS). The LSS consists of "a total of 30 behavioral statements, 10 each corresponding to the visual, auditory, and tactile/kinesthetic modalities. Participants self-assess how often they perform each behavior, based on a 5-point Likert scale (0 = never, 1 = rarely, 2 = sometimes, 3 = often, 4 = always)" (p. 803).

Some sample items are as follows (pp. 832-833): visual (e.g., *I remember something better if I write it down.*; *I take detailed notes during lectures.*; *I need written directions for tasks.*; and *I understand lectures better when the teacher writes on the board.*), auditory (e.g., *I remember things better if I discuss them with someone.*; *I prefer to learn by listening to a lecture rather than reading.*; *I need oral directions for a task.*; and *When I turn on the TV, I listen to the sound more than watch the screen.*), and tactile/kinesthetic (e.g., *I'd rather start to do things, rather than pay attention to the directions.*; *If I have a choice between sitting and standing, I'd rather stand.*; *I get nervous when I sit still too long.*; and *I move my hands when I speak.*).

The finding of this study that I think is worthy of notice is that no statistically significant differences were observed among learning style preference groups in respect of vocabulary learning. Regarding this, Tight (2010) states that "specific learning style preferences, in and of themselves, are neither a boon nor a hindrance to L2 vocabulary learning. Rather, participants of various perceptual learning style preferences appear to be equally capable of lexical learning. Such a finding confirms one of the tenets of learning styles advocates; namely that most people are capable of learning, although everyone does so in their own way" (p. 817). Furthermore, as the researcher states, "the fact that subjects

in the study demonstrated an equal ability to learn, regardless of their perceptual learning style preference, suggests that no perceptual learning style preference need be seen as disadvantageous for L2 vocabulary learning. Rather, given the right conditions, learners of all style preferences can be successful” (p. 823).

The Effects of a Vocabulary Intervention Program on Language Minority Students' English Vocabulary and Writing Outcomes

Mancilla-Martinez (2010) investigated the effects of a vocabulary intervention program on language minority students' English vocabulary and writing outcomes.

This study comprised 49 fifth-grade Spanish-speaking language minority learners of English studying at a school in the Northeastern United States. Specifically, the study employed a matched-control design, and one classroom ($n = 24$) served as the treatment group and the other ($n = 25$) the contrast group. The treatment group received a 20-week vocabulary intervention program, while the contrast group continued with the regular, district-wide literacy instruction (pp. 676-677).

The obtained data showed that “the treatment group gained knowledge of a larger number of target words than did the contrast group and that the treatment group students were generally better at determining their own word knowledge. Further, individual growth modeling revealed the treatment students' overall writing quality improved over the course of the 20-week intervention, even though writing instruction was not part of the intervention, and improvements in students' writing quality were larger during the last 10 weeks of the intervention” (p. 669).

Word Recognition in Arabic as a Foreign Language

Hansen (2010) sought to examine how and to what extent the Arabic writing system affected visual word recognition by learners of Arabic as a foreign language (AFL).

After giving concise descriptions of script, orthography, and word recognition in Arabic (pp. 568-570), and after reviewing previous studies on AFL reading (pp. 570-571), the researcher presented the following three hypotheses (p. 571): (a) The unfamiliar letter architecture and the unfamiliar phonemes will result in reduced speed and increased error frequency in AFL word decoding; (b) Lack of vowelization results in reduced reading speed and comprehension in AFL reading; and (c) AFL learners lack knowledge of the morphological structures used by native speakers to compensate for the lack of vowel information.

This study comprised 71 AFL learners (university students) at three different proficiency levels and a control group of 24 native speakers of Arabic (pp. 571-572).

The results showed that the Arabic writing system represented a major obstacle to the establishment of automatic word recognition (p. 567, pp. 574-577). Based on the results of this investigation, Hansen (2010) states that “especially graphical, but also orthographical, elements of the Arabic writing system do inhibit learners' word recognition” (p. 579). Furthermore, with a view to fostering automatic word recognition, which is a prerequisite for skilled reading, the researcher argues for more explicit training of decoding skills in AFL (p. 579).

An Academic Formulas List

Simpson-Vlach and Ellis's (2010) article aimed at creating an empirically derived, pedagogically useful list of formulaic sequences for academic speech and writing, comparable with the Academic Word List (AWL; Coxhead, 2000). They call this list the Academic Formulas List (AFL).

The AFL includes formulaic sequences identified as frequent recurrent patterns in written and spoken corpora which are significantly more common in academic discourse than in non-academic discourse and which inhabit a wide range of academic genres (p. 487).

The results of Simpson-Vlach and Ellis's (2010) study are summarized in the form of the following three lists: (a) the Core AFL in its entirety (Core AFL Academic Formulas), (b) the first 200 formulas of the Written AFL (Written AFL Top 200), and (c) the first 200 formulas of the Spoken AFL (Spoken AFL Top 200) (p. 497). (It should be noted that these three lists are available in the form of appendices at *Applied Linguistics online*, and that the appendices have no page numbers.)

Additionally, after creating these three lists, Simpson-Vlach and Ellis (2010) tackled the task of grouping the formulas into categories according to their primary discourse-pragmatic functions (p. 497), and the results of their classification of functional categories are made up of the following three: (a) Group A (Referential expressions, pp. 498-499), (b) Group B (Stance expressions, pp. 500-501), and (c) Group C (Discourse organizing functions, pp. 501-502).

Lexical Diversity in Writing and Speaking Task Performances

Yu (2010) investigated lexical diversity in writing and speaking task performances.

After defining the term *lexical diversity* (p. 238), the researcher gave a concise description of methods of measuring lexical diversity (pp. 238-239). Specifically, he focused on *D* — a measure of lexical diversity proposed by David Malvern and Brian Richards. It has been widely used in vocabulary research; the advantage of *D* is that it is

not as affected by the length of the text being assessed as other measures (e.g., type-token ratio) are. (For a detailed description of *D*, see Malvern & Richards, 1997, 2002; Malvern, Richards, Chipere, & Durán, 2004.)

This study analyzed a sample of MELAB (Michigan English Language Assessment Battery) archived data with a view to investigating the lexical diversity observed in writing and speaking task performances (pp. 242-245).

The results of the analysis indicated that *D* had a statistically significant and positive correlation with the overall quality ratings of writing and speaking task performances and with the MELAB test-takers' general language proficiency. However, “the significant relationships were not borne out across the subgroups of the sample in terms of gender, first language background, purpose of taking the test and topics of the writing prompts” (p. 236). Additionally, it was also shown that different writing topics had significant effects on lexical diversity — especially the topics that the test-takers were highly familiar with — even after controlling for writing ability and overall language proficiency (p. 236, pp. 250-251). Furthermore, the obtained data suggested that *D* might be a better predictor of speaking than writing task performances; the magnitude of the predictability of *D* for interviews (i.e., speaking task) seemed to be bigger than that for written compositions (i.e., writing task) (p. 251).

Conclusion

In this article second language vocabulary research published in leading international research journals in 2010 was reviewed. In addition to the articles examined in the preceding sections, the following papers were also published in 2010: for example, Barcroft and Rott (2010),⁶ Beglar (2010),⁷ Brown (2010),⁸ Chen and Truscott (2010),⁹ Cobb (2010),¹⁰ Coxhead (2010),¹¹ Dilans (2010),¹² Durrant and Schmitt (2010),¹³ Fitzpatrick and Clenton (2010),¹⁴ Folse (2010),¹⁵ Forsberg (2010),¹⁶ Han and Chen (2010),¹⁷ Horst (2010),¹⁸ Laine and Salmelin (2010),¹⁹ Laufer and Ravenhorst-Kalovski (2010),²⁰ Lindqvist (2010),²¹ Lindsay and Gaskell (2010),²² Liu (2010),²³ Matsuoka and Hirsh (2010),²⁴ Meara and Olmos Alcoy (2010),²⁵ Pellicer-Sánchez and Schmitt (2010),²⁶ Qasem and Foote (2010),²⁷ Wan-a-rom (2010),²⁸ Webb (2010),²⁹ and Yamashita and Jiang (2010).³⁰

This is the ninth attempt to tackle the task of reviewing second language vocabulary research (Tanaka, 2008, 2009, 2010, 2011, 2012a, 2012b, 2014, 2015). Specifically, Tanaka (2008) examined articles published in 2006, Tanaka (2009) focused on articles published in 2007, Tanaka (2010) dealt with articles published in 2008, Tanaka (2011) investigated articles published in 2005, Tanaka (2012a) explored articles published in 2004, Tanaka (2012b) reviewed articles published in 2003, Tanaka (2014) covered articles published in 2002, and Tanaka (2015) scrutinized articles published in 2009. I hope that

the present review, together with the above eight (i.e., Tanaka, 2008, 2009, 2010, 2011, 2012a, 2012b, 2014, 2015), will be of help to those involved in second language vocabulary research.

Notes

¹To be precise, 32 students participated in the study. However, data from two participants were dropped “because their performance accuracy on the sentence comprehension task was no better than chance” (Yuan, Woltz, & Zheng, 2010, p. 457).

²It should be noted that in the original source, the first letter of this word (i.e., this) was “T” (uppercase letter). In accordance with section 6.07 of “*Publication Manual of the American Psychological Association*, 2010, p. 172,” the first letter of the first word was changed from “T” (uppercase letter) to “t” (lowercase letter).

³It should be noted that in the original source, the first letter of this word (i.e., priming) was “P” (uppercase letter). In accordance with section 6.07 of “*Publication Manual of the American Psychological Association*, 2010, p. 172,” the first letter of the first word was changed from “P” (uppercase letter) to “p” (lowercase letter).

⁴In the present review, there are several places in which sentences beginning with such words as (a), (b), and (c) are enumerated after a colon. It should be noted that in such cases, sentence-initial words begin with an uppercase letter (even if they are preceded by the conjunction *and*).

⁵See Note 4.

⁶Barcroft and Rott (2010) investigated partial word form learning in the written mode in L2 German and Spanish.

This study comprised 47 first-semester learners of L2 German and 68 first-semester learners of L2 Spanish from two large universities in the Midwest of the USA. These first-semester courses are for complete beginners (pp. 629-630).

⁷Beglar (2010) conducted a Rasch-based validation study with a view to providing validity evidence for a 140-item form of the Vocabulary Size Test, designed to measure written receptive knowledge of the first 14,000 word families of English.

⁸Brown's (2010) article pertains to how to deal with proper nouns in text coverage calculations. Specifically, he examined the assumption that proper nouns are unproblematic for second language readers.

⁹Chen and Truscott (2010) investigated the effects of repetition and first language lexicalization on incidental second language vocabulary learning by 72 Mandarin-speaking first-year students at two universities in Taiwan.

¹⁰Cobb's (2010) article examines (a) the assumptions behind modeling what texts look like to learners with different levels of lexical knowledge (pp. 182-186) and (b) approaches

to handling proper nouns in text profiling (pp. 186-190), and discusses (c) the future of the Academic Word List (pp. 190-195). (See Coxhead, 2000, for the Academic Word List.)

¹¹Coxhead's (2010) article highlights some of the major questions Paul Nation addresses in his research into second language reading and vocabulary.

¹²Dilans (2010) investigated the effects of two oral corrective feedback techniques (prompts and recasts) on second language vocabulary learning.

¹³Durrant and Schmitt's (2010) study examined adult second language learners' retention of collocations.

Specifically, their study comprised 84 non-native speakers of English (56 female, 28 male) enrolled in postgraduate courses at the University of Nottingham (p. 175).

The results suggested that adult learners of English as a second language retained information about what words appeared together. Additionally, it was also suggested that the participants did not pay exclusive attention to learning individual words, but that they retained memory traces of collocational chunks included in the language to which they were exposed (p. 182).

For *use* of collocations, see Durrant and Schmitt (2009), which investigated and described the extent to which nonnative writers of English made use of collocations in comparison to English native speaker norms.

¹⁴Fitzpatrick and Clenton (2010) examined the performance of a vocabulary test designed to measure second language productive vocabulary knowledge.

Specifically, the test assessed in this study is Lex30, which employs a word association task to elicit vocabulary and uses word frequency data to measure the vocabulary produced (p. 537). (For Lex30, see Meara & Fitzpatrick, 2000.)

¹⁵Folse (2010) examined the amount of explicit vocabulary focus that occurred in a week of classes for one group of upper intermediate students ($n = 14$) in an intensive English program at a large North American university.

¹⁶Forsberg (2010) investigated the use of conventional sequences by L2 learners of French. Drawing on a phraseological identification method, the researcher sought to provide a general description of the use of conventional sequences.

¹⁷Han and Chen (2010) attempted to examine intentional and incidental second language vocabulary learning through repeated reading, an instructional procedure involving repetition of the same text.

¹⁸Horst (2010) reported on a study that investigated all of the teacher talk addressed to a group of advanced adult learners of English as a second language in a 9-week conversation course. Specifically, she examined the extent to which the teacher used words that were likely to be new to the learners and the extent to which they were repeated.

¹⁹Laine and Salmelin (2010) reviewed behavioral, neuroimaging, and neuropharmacological studies that employed a word learning task labeled as the Ancient Farming

Equipment paradigm. This task has been used to explore the neural correlates of explicit learning and maintenance of new names for novel objects in the native language (p. 25).

Based on the review, Laine and Salmelin (2010) drew the following five conclusions (pp. 40-42): (a) Retrieval of both the newly learned and familiar names is subserved by predominantly left hemispheric cortical regions; (b) Within the predominantly left hemispheric cortical network, retrieval of newly learned words can be accomplished in different ways, depending on the exact form of training; (c) Episodic memory mechanisms subserved by hippocampal structures are related to word acquisition rather than long-term maintenance of newly learned words; (d) Explicit learning and maintenance of novel words can be facilitated by neuropharmacological manipulation that boosts the dopaminergic system; and (e) Neural events following completed training may predict long-term retention of newly learned words.

²⁰Laufer and Ravenhorst-Kalovski (2010) investigated the relationship among second language learners' vocabulary size, lexical text coverage that their vocabulary provided, and their reading comprehension.

²¹Lindqvist (2010) reported on a study that investigated inter- and intralingual lexical influences in the oral production of 14 advanced learners of French as a third language.

²²Lindsay and Gaskell (2010) made a review of behavioral and neuroimaging research pertaining to the acquisition of novel words.

Specifically, Lindsay and Gaskell (2010) described behavioral and neuroimaging evidence on the consequences of learning new words, and focused their attention on the acquisition of novel words through the medium of speech (pp. 45-46).

²³After reviewing previous studies on the definition of collocations (pp. 4-6) and the arbitrariness of collocations (pp. 6-10), Liu (2010) tackles the task of examining (a) collocations included in collocation dictionaries and textbooks and (b) the way they are taught. Based on the results of this investigation, he argues for a pedagogical approach to collocations that involves corpus-based cognitive analysis (pp. 22-28).

²⁴What are the vocabulary demands of reading an ELT course book? What vocabulary learning opportunities are provided in an ELT course book? These two research questions were addressed in a study by Matsuoka and Hirsh (2010).

Specifically, the two researchers examined an ELT course book designed for upper-intermediate level learners. The book has twelve chapters, and all the words appearing in the book were analyzed. The total number of running words in the twelve chapters turned out to be 44,877 (pp. 59-60).

²⁵Meara and Olmos Alcoy's (2010) article addressed the issue of estimating productive vocabulary size in second language learners. Specifically, these two researchers argued that there might be some similarities between assessing productive vocabulary size and counting animals in the natural environment, and explored whether it would be possible

to use Petersen's method — one of the capture-recapture methods developed by ecologists to measure animal populations.

²⁶Pellicer-Sánchez and Schmitt (2010) conducted an exploratory study that investigated second language incidental vocabulary acquisition. Specifically, they examined the degree to which second language readers could acquire vocabulary from reading an unmodified authentic novel called *Things Fall Apart*.

²⁷Qasem and Foote (2010) examined predictions made by Kroll and Stewart's (1994) Revised Hierarchical Model and those made by Frost, Forster, and Deutsch's (1997) Morphological Decomposition Model with two groups of native speakers of Arabic at lower and higher levels of L2 English proficiency.

²⁸Wan-a-rom (2010) investigated how second language learners self-assessed word knowledge on a page of text taken from a graded reader.

²⁹Webb (2010) investigated the extent to which glossaries may affect the percentage of known words in television programs. Specifically, the transcripts of 51 episodes of 2 television programs were analyzed to create glossaries consisting of the low-frequency (less frequent than the 3,000 word level) word families that were encountered 10 or more times in each program (p. 201).

³⁰Yamashita and Jiang (2010) investigated first language influence on the acquisition of second language collocations. Specifically, drawing on a framework proposed by Kroll and Stewart (1994) and Jiang (2000), the two researchers (i.e., Yamashita and Jiang) compared the performance on a phrase-acceptability judgment task by native speakers of English, Japanese English as a second language (ESL) users, and Japanese English as a foreign language (EFL) learners.

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